INTERNATIONAL EYE FOUNDATION

In Partnership with:
Centro de Promoción Agropecuaria Campesina (CEPAC)

"Capacity Building for Quality Child Survival Interventions"

CS XV
Ichilo Province, Bolivia
Cooperative Agreement No.: FAO-A-00-99-00039-00

SEPTEMBER 30, 1999 - SEPTEMBER 29, 2003

Midterm Evaluation

October 2001

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ACRONYMS AND ABBREVIATIONS

ARI Acute Respiratory Infection
BCC Behavior Change Communication
BTC Belgian Technical Cooperative
BV Buena Vista Municipality
CAI Committee for Analysis of Information
CEPAC Centro de Promocion Agropecuaria Campesina
CORE Child Survival Collaborative and Resource Group
CS Child Survival
CSP Child Survival Project
CSSP Child Survival Support Project, Johns Hopkins University
CSTS Child Survival Technical Support Project, Macro International
DCM Diarrheal Case Management
DHO District Health Office
DHS Demographic and Health Survey
DIP Detailed Implementation Plan
DOSA Discussion Oriented Self-Assessment
EPI Expanded Program of Immunizations
HFA Health Facilities Assessment
HIS Health Information System
HQ Headquarters (IEF Bethesda, MD)
IEC Information, Education, Communication
IEF International Eye Foundation
IMCI Integrated Management of Childhood Illness
KPC Knowledge, Practices and Coverage Survey
MOH Ministry of Health
MSH Management Sciences for Health
MTE Mid Term Evaluation
MU Mobile Unit
NGO Non-Governmental Organization
ORS Oral Rehydration Solution
ORT Oral Rehydration Therapy
PCM Pneumonia Case Management
PROCOSI PVO/NGO Network in Bolivia (Programa de Coordinación en Superviviencia Infantil Organizaciones No Gubermentales)
PVO USAID Registered, Private Voluntary Organization
QA Quality Assurance
QAP Quality Assurance Project, Bethesda, Maryland
QHP Quality Home Practices Survey
RAN Rural Auxiliary Nurse
RPS (*Responsable Popular de Salud*) Community Health Volunteer
SC San Carlos Municipality
SCM Standard Case Management
TA Technical Assistance
TB Tuberculosis
TT Tetanus Toxoid
USAID United States Agency for International Development
WHO World Health Organization
WRA Women of Reproductive Age
Y Yapacani Municipality

A. Summary

International Eye Foundation, in partnership with CEPAC, has been implementing a four year Child Survival Project (10/99 to 9/03) in the Department of Santa Cruz in Bolivia. The goal of the project is to improve the delivery of child survival interventions and make these changes sustainable. The partnership will achieve this goal by: 1) improving the managerial capacity of CEPAC and 2) improving coverage and quality of each Child Survival (CS) intervention. Interventions are 50% nutrition (including breastfeeding and micronutrients), 20% on immunization and 15% each diarrhea and pneumonia.

This document presents the results of a participatory midterm evaluation (MTE) which was held October 1-13, 2001. The evaluation team included representatives from CEPAC, IEF Bolivia, IEF headquarters, Ministry of Health, and an external consultant.

The main strategies for implementing the interventions are:

- Strengthen skills of Ministry of Health (MOH) Rural Auxiliary Nurses (RAN)
- Expand the use of Mobile Units (MU) which visit specific communities
- Community education through festivals, mass media and education sessions
- Enhance the network of community volunteers (RPS)
- Focus on the quality of interventions
- Implement system of Supportive Supervision
- Coordination with the 3 municipal governments and the District Health Office

The main strategies for strengthening CEPAC are:

- Technical assistance (TA) from IEF and contracted consultants
- Use of a capacity building assessment to guide concrete activities

The results attained by the CSP during the first half of the project are:

- Improved coverage
- By working at the district level, CEPAC/IEF has been able to influence the DHO to take a greater interest in public health, and recognize the value of the RPS
- Focus on quality through the use of quality checklists and quality standards.
- Integration within CEPAC's health program, within DHO, and with other NGOs
- Good Information, Education, Communication activities
- Strengthening of CEPAC

Quite a bit of progress has been made in strengthening CEPAC and the MOH/DHO but the work done so far by the CSP at the community level has been minimal and needs to be the focus for the next two years. Work with RPSs is a very weak area, as is a project definition of what the role of the community and municipalities should be in the health interventions. The CSP needs to involve communities more if any sustainability of health activities is to be attained. Communities need to be aware of what the CSP is trying to accomplish, and why, so that communities can advocate for health services to municipal authorities. Obstacles to implementation include:

- Late start up of activities (DIP was not approved until a year after start of funding),
- CS field staff is very limited
- RPSs are underutilized, they could take on a much more active role in education

- CEPAC is the implementing partner of this CSP, receiving intensive TA from IEF via the Project Advisor. The Project Advisor hired in 2/00 recently left his position and has been replaced by a new Bolivian Project Advisor. This change makes a revision of the roles and responsibilities of IEF and CEPAC a critical issue at this time.

The project got off to a slow start and is still trying to recover lost time. Good progress has been made on strengthening IEF, CEPAC and the MOH, but much work still needs to be done on involving the community and RPSs in project activities. A broadening of the definition of sustainability is needed to include health behaviors and activities, not just the sustainability of CEPAC. It is critical that the issue of staffing is reviewed, there is a great deal of field level work to be done, and a lack of adequate staff to carry out project activities.

RECOMENDATIONS

- The MU should begin implementing IMCI, to serve as a model for the RANs
- RPSs should be trained as soon as possible on the four project interventions
- Avoid encouraging the use of home prepared oral rehydration solution
- The CSP should conduct a simple qualitative study of what liquids are traditionally given for children with diarrhea, to encourage their use in education messages.
- RPSs should not be encouraged to use cotrimoxazole for pneumonia during this CSP.
- Agreements should be formally signed with communities to ensure their participation
- Motivate municipal leaders to make a commitment to health in annual planning
- CEPAC should maintain the goal of increasing the coverage of communities with a RPS from 40% (70/175) to 80% (140/175) as presented in the MTE workshop
- Discussions should be held with RPSs to develop strategy for motivating volunteers.
- The CSP/DHO (RAN and MU) should provide increased supervision and follow-up to RPSs to improve technical skills and show solidarity and support.
- The CAI at the sector level is a missed opportunity to provide sustainable, low cost, continuous support to the RPS and should be strengthened.
- Implement written method for sharing information with communities 2-4 times/year.
- Review the content of all educational materials to define where gaps exist and develop complementary content and methodologies to improve message delivery.
- Strengthen abilities of RPS, RAN, DHO training team to provide effective education
- Seek more information on BCC methodologies and select one methodology to pilot test. All educational activities should have a behavior change focus.
- Define exactly what the objective of the MU is, and develop a prioritization of where the services could be best used without taking over the RANs responsibilities.
- Increase supportive supervision to RANs to provide follow-up for all activities
- Develop a sustainability plan, defining what should be sustained and what concrete steps can be taken to ensure sustainability of health activities at the community level.
- A serious revision of staff positions needs to be made, especially for IEF staff. This should include a revision of roles and responsibilities for both CEPAC and IEF.
- Develop a mechanism to conduct a CAI in each community once per quarter.

B. Progress toward achievement of program objectives

1. Technical Approach

a. Overview of the Project

Since October 1999, IEF (International Eye Foundation), in partnership with CEPAC (Centro de Promocion Agropecuaria Campesina), has been implementing a four year Child Survival Project (CSP) in the Department of Santa Cruz in Bolivia. The goal of the project is to improve the delivery of child survival interventions and make these changes sustainable. The partnership will achieve this goal by: 1) improving the managerial capacity of CEPAC and 2) improving coverage and quality of each Child Survival (CS) intervention.

Before the CSP began, CEPAC was serving a total population of about 21,709 people in the area of Yapacaní. The CSP has allowed for the expansion of coverage to 62,153 people in the entire Province of Ichilo, including the 3 municipalities or areas of Yapacani, Buena Vista and San Carlos. The project focuses 50% of its effort on nutrition (including breastfeeding and micronutrients), 20% on immunization and 15% each on diarrhea and pneumonia interventions.

The main strategies for implementing the interventions are:

- Strengthen skills of Ministry of Health (MOH) Rural Auxiliary Nurses (RAN)
- Expand the use of Mobile Units (MU) which visit specific communities
- Community education through festivals, mass media and education sessions
- Enhance the network of community volunteers (RPS)
- Focus on the quality of interventions
- Implement system of Supportive Supervision
- Coordination with the 3 municipal governments and the MOH District Health Office (DHO) of Ichilo

The main strategies for strengthening CEPAC are:

- Technical assistance (TA) from IEF and contracted consultants
- Use of a capacity building assessment to guide concrete activities

The results attained by the CSP during the first half of the project are:

- Improved coverage
- Focus on quality through the use of quality checklists and quality standards.
- Integration within CEPAC's health program, within DHO, and with other NGOs
- Good IEC (Information, Education, Communication) activities such as Festivals, community education sessions and mass media which integrate the CSP into an overall integrated health package
- Strengthening of CEPAC

Quite a bit of progress has been made in strengthening CEPAC and the MOH/DHO, but very little has been done for the RPSs and the community. Obstacles to implementation include:

- Late start up of activities (the DIP was not approved until 11/00, more than a year after the start of funding),
- CS staff is very limited, the 3 principal CEPAC field staff are also the supervisors of the MU, and their visits to the field are occupied with providing medical services scheduled for 20 days per month.

- RPSs are very much underutilized by the project, they could take on a much more active role in education, growth monitoring, Vitamin A distribution, etc.

This document presents the results of a participatory midterm evaluation (MTE) which was held October 1-13, 2001. The evaluation team included representatives from CEPAC, IEF Bolivia, IEF headquarters (HQ), Ministry of Health, and an external consultant, principal author of this document. See Attachments B, C, D for more information on the evaluation methodology. Specific recommendations are underlined throughout the document and summarized in the final section. A summary of the MTE team results is included in Attachment E, including detailed conclusions and recommendations.

b. Progress by Intervention

A number of studies were planned as part of the design process and monitoring and evaluation plan of this project. Too many studies were originally included in the DIP design, resulting in a duplication of effort and no real plan for how to use the information. There has been little focus on training CEPAC to replicate these studies, except for the KPC A KPC, Health Facility Assessment (HFA), Nutritional Assessment and Cost Analysis study have been completed to provide baseline information. An institutional assessment for CEPAC was conducted in 1997 and will be used as a baseline.

The nutritional assessment provided good information that will be valuable for developing a nutrition strategy but included some duplication of information with the KPC. The Cost Analysis study was completed and has been helpful in focusing on cost containment and the comparative value of activities. None of the baseline studies were repeated at midterm except the institutional assessment, which CEPAC repeated as a self-assessment. The HFA was not repeated at midterm because the main activity for improving the facilities (cold chain) was not completed.

Studies which were planned but not completed include the sustainability study (scheduled for later this year), Customer satisfaction (including ability to pay), Quality Home Practices, and focus groups with RPSs to look at motivation of volunteers. A census has been completed in some communities but information has not yet been complied.

An important lesson learned is that studies should be carefully thought out, including the frequency of completing them, to ensure that the information being collected is essential for the project and that adequate staff time is allocated. There was also some overlap with studies conducted by other agencies. A suggestion made during the MTE was that all organizations which work in Ichilo should develop a data base of investigations, including human resources trained in survey methodologies, questions used, indicators, etc. to share among NGOs and with the MOH.

IMCI (Integrated Management of Childhood Illnesses)

While IMCI is not a separate intervention, it does encompass the four selected CSP interventions. Implementation is at a preliminary stage in Ichilo Province. MOH staff has been trained, and many retrained because clinical IMCI was not implemented immediately after training. In most Health Posts (HP) IMCI is still not functioning for lack of access to the correct

IMCI form. Retraining on use of the IMCI reporting format should be carried out through supervision visits.

One of the main strategies of the CSP is the use of mobile units to visit rural communities. MUs are responsible for immunization, growth monitoring, nutrition and breastfeeding counseling, Vitamin A distribution, reproductive health (family planning, Pap smears, prenatal visits through another grant), follow-up of tuberculosis patients, education sessions, primarily to women, and home visits (newborns, no-shows for immunizations, etc.). The MU is also responsible for supervising the RPSs and conducting CAI (Committee Analysis of Information) meetings with the communities. The MU should immediately begin implementing IMCI, to serve as a model for the RANs.

Due to the expansion of areas made possible by the CSP and changes made after the Cost Analysis study, the MUs have increased from one unit before the project began, to three currently. Each MU is now scheduled to visit 40 communities in a two month period, compared with 20 previously.

According to a report from the DHO, 21 MOH staff currently need training in IMCI, some who did not receive training during the previous courses and some who are new to the area. High staff turnover within the MOH is common in Bolivia, the CSP needs to provide for re-training in IMCI for new staff.

IMCI in Bolivia follows WHO standard case management and all training has been conducted by the MOH, according to national policy. The indicators for adequate care in both Diarrhea Case Management (DCM) and Pneumonia Case Management (PCM) should state the use of standard case management (SCM) for IMCI. See Attachment F.

The implementation of IMCI at the community level is very controversial right now in Bolivia, mainly revolving around the definition of the role of RPS in IMCI at the community level (curative vs. preventative). The general thought is that IMCI should be strengthened at the clinical level first before community IMCI is introduced. CEPAC/IEF are working with USAID and other NGOs on an IMCI committee to review the alternatives.

Project indicators for this intervention include:
1. Increase the coverage of communities with RPS from 40% to 80%.
1. 100% of CEPAC health and MOH counterparts trained in clinical IMCI.
2. 100% of RPSs trained in community-level IMCI.

Suggested changes to these indicators are included in Attachment F. The most important change being recommended is to modify the third indicator deleting the focus on IMCI to simply training RPSs in the four project interventions. Almost no training has been held for RPSs due to waiting on a clarification of the IMCI issue. The CSP and MOH should move forward as soon as possible on training RPSs on the four project interventions.

The HFA at baseline showed less of a problem with the knowledge levels of RANs, and more of a problem with logistics. An equal amount of effort needs to be assigned to logistical problems as to training.

The growth card/maternal card/vaccine records are important for all interventions as tools for educating mothers, registration and follow-up for health staff, and as a means of evaluating project impact. CSP gives a plastic cover for the growth card when a child completes their second dose of DPT and OPV, as an incentive to the mother and also to place greater value on the retention of the card. The problem of card retention has improved in relation to the child's card, but not for the maternal card. Some adjustments are recommended to the indicators due to lack of a maternal card for verifying coverage.

The CSP has implemented a focus on the quality of interventions with an IMCI approach. Quality checklists have been developed, as well as quality standards. The activities related to quality are discussed in Section B.1.c of this document.

Overuse of medicines is a big problem in all interventions. Patients identify good quality service as whether or not drugs are given and frequently pressure RPSs to give them drugs. Most RPSs want to provide drugs, and many simply go to a pharmacy and buy drugs to sell in the community. It was found in the KPC that 37% of mother interviewed in Yapacani (Y) with a child with diarrhea had treated the child with drugs and 40% in BV/SC (Buena Vista and San Carlos). During the MTE RPSs were interviewed who did not know the signs of pneumonia, but were giving cotrimoxizole for both respiratory infections and diarrhea. This represents a poor use of resources, plus the danger of resistance to drugs, by using drugs inappropriately. The CSP should teach communities and RPSs rational drug use.

Diarrhea Case Management (DCM)

Project indicators for this intervention include:

1. Increase % children < 2 yrs with diarrhea that receive more breastmilk from 24%(Y) & 16% (SC/BV) to 50% (Y) and 40% (SC/BV).
2. Increase % of children < 2 yrs with diarrhea that receive more food from 17% (Y) & 19% (SC/BV) to 40% in both areas.
3. Increase the % of mothers that give increased fluids from 39% (Y) & 44% (SC/BV) to 80% (both sites).
4. Increase use of ORT from 27%(Y) & 17%(SC/BV) to 60%(Y) and 50% (SC/BV).
5. Increase % of mothers taking child to health facility for prolonged or bloody diarrhea from 56% (Y) 58% (SC/BV) to 80%.
6. Increase % of health workers accurately treating diarrhea from 30% (est.) to 60%.

Suggested changes to these indicators are included in Attachment F. The most important change being recommended is to define ORT (indicator 4) to bring it in line with MOH and international standards.

The CSP should avoid encouraging the use of home prepared oral rehydration solution (sugar, salt, water mixture) as it has been seen in numerous studies that home preparation compliance is very low resulting in dangerously high levels of electrolytes. This also is based on the MOH policy for DCM. The project should define ORT both for educational purposes and to measure

impact. According to TRM 2000+[1] ORT consists of "The early use of available food-based fluids (except heavily salted soups or very sweet drinks) and/or use of oral rehydration solution (ORS), if available and affordable". ORT should include cereal based fluids, herbal teas, and other liquids traditionally given (unless some compelling reason exists for discouraging their use, i.e. soda pop). The CSP should conduct a simple qualitative study of what liquids are traditionally given for children with diarrhea, (rice water, herbal teas, etc.) to encourage their use in education messages and add to the KPC.

It was found during the MTE that all of the HPs visited had ORS, but only 4 of 13 RPS (31%) had ORS. The 13 RPSs interviewed were asked what signs they would use to determine if a child should be referred to the HP, 6 mentioned dehydration, 7 did not know or gave an incorrect answer, none mentioned prolonged diarrhea or bloody stools.

In the DIP it was stated that the staff would develop a proposal to incorporate a water and sanitation project as a means for preventing diarrhea and that the proposal would be submitted to at least two potential donors by the mid-term. This has not been done. Hygiene education was included in the education session observed during the MTE.

Pneumonia Case Management (PCM)

Project indicators for this intervention include:

1. Increase the number of RPSs with a pharmacy kit with cotrimoxizole from 15 to 200.
2. Increase % of mothers seeking care from a trained provider when child has signs of pneumonia from 44% (Y) and 47% (SC/BV) to 80%.
3. Increase % of health workers accurately treating pneumonia from 30% (est.) to 60%.

Suggested changes to these indicators are included in Attachment F. The most important change being recommended is to delete the first indicator because it is currently under study in Bolivia whether RPSs should be giving cotrimoxazole.

During the MTE it was found that 5 of the 13 RPSs interviewed had cotrimoxizole, but of the 13, only one could mention 2 signs of pneumonia and two who mentioned two signs, the other 10 RPSs (77%) did not know any signs of pneumonia. It is recommended that RPSs not be encouraged to use cotrimoxazole in the treatment of pneumonia during this CSP. Due to the low level of knowledge found during the MTE, and the current lack of a clear policy by the MOH, RPSs should be taught home care for ARI, recognition of danger signs for referral, and follow up of cases through home visits.

Eleven of 16 (68.8%) facilities reported having cotrimoxazole syrup in stock on the day of the HFA. Only 5 of 16 (31.3%) of facilities reported having pediatric cotrimoxazole tablets. Supply of cotrimoxazole tablets was found in 5 of the 6 HP (83%) during the MTE.

The PCM intervention was implemented in accordance with MOH and international standards and essentially as outlined in the DIP.

[1] Technical Reference Materials, CSTS, 2000.

Nutrition, including Micronutrients and Breastfeeding

Project indicators for this intervention include:

1. Increase coverage of VA (2 doses) of 12-24 month olds from 3% (KPC) to 85% as verified on health card.
2. Increase coverage of VA to post-partum women (1 mo.) from 0.7%(Y) and 2%(SC/BV) to 50% in both areas as verified on the health card.
3. Increase % of pregnant mothers receiving iron tablets from 15.6%(Y) & 12.7%(SC/BV) to 50% as verified on health card.
4. Increase % of children 6-24 months of age who consume vegetables rich in VA from: (a.) at least twice in 24 hours, 43% (Y) and 29% (SC/BV) to 70% (Y) and 60% (SC/BV).
(b.) at least five times in 7 day period, 43% (Y) and 48% (SC/BV) to 70% in both areas.
5. Increase exclusive breastfeeding from 43% (Y) and 17% SC/BV in children 0-6 months of age, to 70% (Y) and 50% (SC/BV).
6. Increase % of women continuing to breastfeed at 12-24 months from 40%(Y) and 40%(SC/BV) to 60% in both areas.
7. Increase % of children initiating breast-feeding immediately post-partum from 64% (Y) and 45% (SC/BV) to 80% (Y) and 65% (SC/BV).

Suggested changes to these indicators are included in Attachment F. The most important change being recommended is to correct some errors in defining the indicators in the DIP. The nutrition intervention was implemented in accordance with most MOH and international standards and essentially as outlined in the DIP. A Nutrition Assessment was conducted in early 2001 (see Project Highlight) to serve as input for developing a strategy for implementing the nutrition intervention during the second half of the project. CEPAC/IEF/DHO should develop and implement a nutrition strategy on a district wide basis.

In the DIP it was incorrectly stated that in Yapacaní 61.5% and in SC/BV 79.7% of children are breastfed exclusively to six months. The correct figures are 43%-Y and 17% in SC/BV. It was also incorrectly stated in the DIP that "the MOH promotes exclusive breastfeeding to 4-6 months in under two year olds, consistent with WHO guidelines". MOH policy is breastfeeding until 6 months. The CSP has been inconsistent on clarifying the importance of breastfeeding exclusively until 6 months in some educational materials.

The breastfeeding and complementary feeding activities developed in conjunction with Linkages have been the most positive to date in the CSP. During the MTE, all of the RPSs reported having been trained in breastfeeding and 11/13 (85%) had educational materials for teaching mothers. Unfortunately, only 7 out of 13 (54%) of the RPSs could define exclusive breastfeeding. Good quality materials have been developed, but a number of RPS had received photocopies of the counseling cards, thus decreasing the proposed impact by using materials in black and white and without protective plastic coating.

CEPAC has been able to access technical support with LINKAGES through their involvement in PROCOSI as part of a national effort to improve breastfeeding and complementary feeding practices. Agricultural extensionists of CEPAC were also trained in breastfeeding and complementary feeding, to be included in their education programs in the communities. Training has been provided, but lacks follow-up to insure quality implementation.

Immunization

The Immunization intervention was implemented in accordance with MOH and international standards and essentially as outlined in the DIP. Project indicators for this intervention include:

1. Increase % of children 12- 24 months of age fully immunized from 40% (Y) & 25% (SC/BV) to 85% in all areas.
2. Increase % of children fully immunized before one year of age (<13 mo.) from 14% (Y) & 12% (SC/BV) to 50% in all areas.
3. Increase % of WCBA with at least two TT vaccinations reported on maternal health card from 30% (Y) & 25% (SC/BV) to 60% in all areas.
4. Increase availability of all vaccines at health facilities to 80% (current levels: TB—22%, Polio—42%, DPT--42%, Measles--29%, and TT--42%).
5. Increase from 66% to 100% the number of facilities that have a community vaccination registry.
6. New MOH Vaccine/Cold Chain Coordinator visits each facility monthly and reports checklist data to Ichilo Province partners (IEF/CEPAC, Belgian Technical Cooperation(BTC)).

Suggested changes to these indicators are included in Attachment F. The principal strategies for reaching the indicators have been:

- Use of the MU to improve coverage
- Purchase of cold chain equipment (in conjunction with the BTC) to make immunizations accessible year-round, not just during national campaigns
- Improve vaccine card retention to document vaccine coverage
- Training of MOH staff in EPI and logistics management

According to data from the HIS, the number of children and women being vaccinated has increased compared to data from 2 years ago. This is expressed in actual numbers, not based on a percentage of the total population. In observations of the MU, all used a community vaccination registry and according to CSP records all HP have been supplied with registers.

Due to a number of logistical problems, the newly purchased cold chain equipment was still not functioning. In some HP the problem was lack of a connector for the gas, in others the security of the building needed to be enhanced before the municipal authorities wanted to put the equipment in place. It was decided to only purchase gas refrigerators, as the use of solar panels was not feasible. The issue of provision of a continuous gas supply has not been resolved and will be discussed further in the Sustainability Section. Cold chain management training was held in 12/00. Once the cold chain is in place, EPI should be implemented on a continuous basis, with not so much reliance on campaigns.

A supervisor for Vaccinations has been named by the MOH, but none of the HP visited during the MTE had received visits because the person has not yet begun making visits. This person will devote half of his time to cold chain supervision and half to supervision of the MOH's HIS system. A supervision checklist developed by the MOH will be used for controlling adherence to cold chain management and quality of the intervention.

The HFA was not repeated at MTE since the main change would have been the cold chain, which is still not in place. In interviews with 6 HP during the MTE, problems with vaccines was only reported in one, due to not having cold chain equipment. This information could be

deceptive as it was informally reported that shortages normally only occur during national campaigns.

The MOH attributes the shortages in vaccines at the area level to population underreporting. Vaccine distribution is based on census figures from 1991, with a calculated annual increase. This increase does not take into consideration migration, which has been particularly notable in the Santa Cruz area. The CSP has conducted a census of some of the communities, but it the information has not been complied and was only conducted in communities with active RPSs. The MOH will not recognize the CSP census data for calculation purposes in determining vaccine need. A national census was conducted during 2001 and results will be available in 2002. Preliminary figures are available, but have not been official recognized. CEPAC/IEF/DHO needs to mount a strong advocacy strategy to get the central MOH to modify the distribution of vaccines and supplies based on the results of the 2001 Census.

c. New Tools or Approaches

Two interesting approaches were taken in this CSP; a focus on quality and a cost analysis study.

Three training sessions were planned as part of a comprehensive strategy for improving quality. During the 1st training, supervision checklists were developed, but did not focused on IMCI. The 2nd course developed quality standards, with a focus on IMCI, and a 3rd course to be scheduled during 2002, will look at customer satisfaction. It is recommended that Quality Assurance Project (QAP) be contracted to facilitate the third course, in order to have better consistency in theoretical development.

Results from this work were very positively reported by both CEPAC and MOH staff. The tools developed have been able to take "quality" from a theoretical framework to concrete steps at the HP level. The major interventions have been reviewed from a "quality" perspective.

A Cost Analysis study was conducted in 2001. Key findings from the cost analysis were the following.

- a reduction in the frequency of visits by the MU team to each community would allow the same resources to serve more people.
- a reduction in the size of the MU team would reduce the cost of providing care by 85%, while greatly improving the health of the overall population.
- clinic cost recovery mechanisms should be explored to improve clinic efficiency and sustainability.
- data collection and reporting systems of CEPAC should be updated and standardized for optimal, efficient use.

CEPAC has taken steps to double the number of communities visited by the MUs. This will lead to a more efficient use of resources and improved coverage rates. CEPAC has changed the composition of the MU, before the study the team was 1 doctor, 1 nurse, 1 RAN for Reproductive Health, 1 RAN for CSP, and a driver. That has now been reduced to only the 3 nurses and 1 doctor shared between the 3 teams. The nurses were taught to drive and the driver position eliminated. Now the MU usually goes with the RAN from the nearest HP and a MOH

doctor. A place for the MU to sleep has been established in remote areas to decrease the cost of fuel in driving far distances. As the nurses now have increased responsibility for operating a CEPAC vehicle, they should be taught basic mechanics to enhance safety in driving in isolated areas.

The Cost Analysis study was a good way to introduce a different point of view and initiated a shift in the thought process of CEPAC staff. Many times interventions are implemented with out really looking at whether they are cost effective-this study emphasized a basic CSP pillar-low cost-high impact.

2. Cross-Cutting Approaches

a. Community Mobilization

The work done so far by the CSP at the community level has been minimal and needs to be the focus for the next two years. Work with RPSs is a very weak area, as is a project definition of what the role of the community and municipalities should be in the health interventions. The CSP needs to involve communities more if any sustainability of health activities is to be attained. Communities need to be aware of what the CSP is trying to accomplish, and why, so that communities can advocate for health services to municipal authorities.

Formalizing Community/Municipal relations

With the Popular Participation Law of decentralization, funds are available at the municipal level for social services and development activities. A set percentage of the municipal budget is dedicated to health. This requires constant pressure to make sure that what is supposed to be for health is used for health. Fund disbursement is behind schedule from municipal authorities in paying the national Basic Insurance. Very little has been formalized with the municipalities and communities as to their role in health activities except for minor discrete contributions; the municipalities will transport the new cold chain equipment to the sites, and provide gas for refrigerators, etc.

CEPAC/IEF need to take a more proactive position in working with communities and municipalities to define responsibilities. Agreements should be formally signed with communities to ensure their participation in health activities and sustaining the RPS. During MTE interviews there was an openness on the part of community leaders towards paying the transportation costs of the RPS to training events, but this has never been formally presented to them.

Some concrete steps which can be taken by CEPAC/IEF include:

1. RANs should receive TA to develop an annual budget to present to the municipality to be included in their annual plan.
2. Motivate the communities to demand health services and prioritize health through better communication about the issues surrounding health in the area, including involving Central and Sub-central levels of community organizations to prioritize health within the municipal budget
3. Motivate municipal leaders to make a commitment to health, including payment for re-supply of gas for the cold chain and gasoline for transportation of health staff to outlying communities

4. Advocate for the inclusion of funds for health activities in the next annual municipal plan (POA) as committed funds, using counterpart funds to leverage municipal funds.

Definition of Population/Communities

The project has been unable to specifically detail which communities they will work in. The DIP stated that the CSP would work in 210 communities, with 80% coverage with RPSs. CEPAC staff clarified in the MTE that 210 is not a realistic number to use as many of the communities are very small and do not justify the investment in training and supervising an RPS. The DIP also stated that there were 175 communities with RPS, but only 122 were active and reporting. The stated goal was to keep training more. In a presentation made by CEPAC, they set the number of communities at 175, with a goal of 80% coverage, or 140 communities. The director of CEPAC later stated that they only plan to work with 122 communities/RPS. The proposed 122 RPS who will work with the project represent a substantial decrease from the 210 stated in the DIP. It is recommended that CEPAC maintain the goal for number of communities with RPS set during the MTE presentation (Attachment F) of 140 out of 175 communities. Increase the coverage of communities with a RPS from 40% (70/175) to 80% (140/175).

The total population that will receive benefits from the CSP should not be effected by the decrease in the number of communities (210 to 175). The census data currently being used by the MOH for Ichilo District is approx. 53,000. Data from the Popular Participation survey show a population of 62,000 and preliminary results from the national census show a population of 73,000. All women and children of the district will indirectly receive benefits from the project through the improved quality of services at the HPs and through services of the MU and community festivals, both of which attract people from neighboring villages which may not be receiving direct services from an RPS. In the third annual report, CEPAC should present a list of the communities it will work in and the population of those communities.

RPS

The RPS is responsible for community mobilization, community education, vaccination campaigns, dispensing of ORS and limited drugs, promoting community health action plans, providing basic medical care and advice, making referrals, and helping to facilitate community activities (festivals, education sessions, etc.). RPSs are also instrumental in collecting community data that is combined with MU and MOH data to generate community, area, and district statistics.

In MTE interviews in the communities, it was found that there is a lack of information about the role of the RPS and an overall weakness in the relationship between the RPS-Community-Health Personal. The CSP should develop a strategy for strengthening the relationship between the RPS-Community-Health Personal including disseminating information during monthly community meetings about the role and activities of the RPS and the CSP.

A data base of RPSs should be developed; which include the RPS's name, what community s/he is from, population of the community, training received, attendance at CAI meetings, etc. This would greatly help the project to track the turnover rate of RPSs, an acknowledged problem, the real extent of which is not known. The DIP was very unclear about the ratio of RPS to families.

Information from the MTE showed that the number ranged from 20-55 families per RPS. A data base of RPS would also clarify this issue and ensure that RPSs have a reasonable workload.

CEPAC has an active role in supporting the Federation of RPSs, including the inaugural National Congress of RPSs in March 2000 in Yapacaní. Key outcomes of this meeting were the demands by the RPSs for; credentials, more training, and greater recognition. This group has a good potential for strengthening the role of the RPS in the future.

By working at the district level, CEPAC/IEF has been able to influence the DHO to take a greater interest in public health, strengthening the RPS network, and recognizing the value of the RPS in improving health coverage and education.

Motivating RPSs

In order to sustain volunteers a satisfactory incentive system needs to be developed for the RPSs. Focus groups, which were planned in the DIP to develop the best long-term strategy for recruiting and maintaining the RPSs, were not conducted. This leaves a large gap in the CSP's ability to motivate and retain volunteers. Discussions should be held with RPSs to develop a strategy for motivating volunteers.

There was a plan in the DIP for providing bicycles on a credit basis to RPSs but the Britannic Mission has supplied bicycles to most RPSs in the area and plans to complete the coverage next year.

Some of the areas are providing free medical care to the RSP, but this needs to be implemented in all areas. Greater care needs to be taken in the selection process for RPS, that it is done by all of the community, that the roles and responsibilities are clear, and a plan made with the community for providing support for the RPS. i.e. paying transportation costs to attend training. A requirement for being a RPS from a certain community should be that the person lives in the community.

MOH and CSP materials should be given to the community, not to the individual RPS. A documentation system for assuring that the community officially receives the materials, confirmed by a signed document, should be developed.

In interviews with 13 RPS during the MTE, they mentioned ways in which they would feel more motivated. They included; increase the recognition and support from the community, more supervision and follow-up, providing basic materials, more training, free health care, pay travel expenses, and economic support. Clearly not all of these aspects can, or should, be provided by the CSP, but many could be encouraged through community meetings and working with the DHO. The CSP/DHO (RAN and MU) should provide increased supervision and follow-up to RPSs to improve technical skills and show solidarity and support.

CAI Monthly Meeting

The direct supervisory visits by CEPAC staff to the RPSs has been very limited, with fewer than 5 visits being documented in 1999 by the MUs (DIP). A direct supervisory system by the DHO after CEPAC funding ends may not be sustainable. An excellent opportunity exists for indirect

supervision of all RPSs, with a system for prioritizing those RPSs who need a direct visit, through the already established CAI meeting. The CAI at the sector level is a missed opportunity to provide sustainable, low cost, continuous support to the RPS and should be strengthened. There is a guide to conducting a CAI sector meeting (which was not reviewed during the MTE) this guide needs to be field tested, used, and modified so that the CAI meeting is a forum for:

1.collecting reports and analyzing information,
2.re-supplying RPS, i.e. ORS packets,
3.an exchange of experiences and a problem solving session for RPS,
4.monthly training in an area identified by the RAN or RPSs as a weakness.

Community Health Committees

The DHO is working on forming Health Committees in the communities. While the formation of health committees is not an objective of this project, the involvement of community leaders is crucial for sustainability. In interviews with community leaders during the MTE many indicated a lack of communication as a problem in accessing health services. The distribution of a monthly bulletin was planned for communities in the DIP, this has not been implemented and the periodicity may be excessive. The project should implement a written method for sharing information with the communities 2-4 times a year.

An obstacle to project implementation has been frequent road blockages as a protest to government policy. As the project site is located on a major trunk road, it is frequently the target of civil disturbances. An area adjacent to the project site is under protest as it is currently a forest reserve, but migration pressures are forcing people to try and invade the reserve. This could potentially be a problem in the future.

b. Communication for Behavior Change

CEPAC/IEF have a three pronged approach to education at the community level:

- Community education sessions
- Festivals
- Mass media

Festivals

The use of community festivals as a strategy for transmitting messages has been very well received within CEPAC, the DHO and the communities. The festival team arrives in the community 2 days prior to the festival to train the teachers, leaders, and RPSs to actively provide information to the communities during the festival and replicate this education later. These local teams also assist with logistical arrangements. Festivals are held in one town and neighboring villages are invited, based on yearly plan to do 30 per year.

This is a great way to involve the teachers and to train them to replicate health messages but more follow-up is needed to see if they are actually replicating the information. This is also a good way to involve men and other family members in health activities. A major focus of the festivals is to encourage people to repeat from memory knowledge concerning the interventions including games based on answering questions. Several examples were observed during the MTE of the inappropriate use of technical terms and inaccurate information during a festival.

Other IEC Activities

Education sessions are generally conducted by the MU during monthly or bimonthly visits. Most RPS reported during the MTE that they do home visits, some do group education at monthly community meetings, which involves both men and women.

The radio programs disseminate health messages and jingles through local radios, and PROCOSI is also beginning a nationwide program for transmitting health messages in Reproductive Health by radio.

Evaluation of IEC

CEAPC acknowledges that this is a weakness and is looking for TA in this area in order to determine if the methods being used are having the desired impact in changing health practices. This initiative should be applauded and IEF should encourage the formulation of an evaluation methodology. A methodology for monitoring changes in behavior at the community level needs to be developed, including a role for the RSP in this process.

Educational Materials

In general the materials being used are of good quality and a good use of existing IEC materials. There are gaps in the basic messages in some interventions, i.e. risk signs in diarrhea and pneumonia. The educational materials do not cover ever aspect of each topic, no one material is going to cover everything. Complimentary activities need to be designed to support the existing materials. This does not mean that high cost printed materials need to be developed to cover these gaps. Some creative methodologies like case studies, role playing, problem solving sessions could be implemented instead of just delivering a message. Identify educational materials that already exist in Bolivia (Peru, Ecuador, etc.) which could be used, instead of developing additional educational materials.

The CSP with the DHO should review the content of all educational materials to define where gaps exist and develop complementary content and methodologies to improve message delivery and content.

The planning of the chronology of educational activities should respond to the epidemiological cycle in the area.

Teach to teach

The CSP utilizes the cascade approach to training but the RPS, RANs and the DHO training team have never been trained to train. This should be a priority to be carried out as soon as possible and all training courses should include a focus on how to replicate the information at the next level. Strengthen the abilities of RPS, RAN and the DHO training team to provide effective education.

IEC/BCC

There is a general confusion between the concepts of IEC and BCC. There is a strong focus on transmitting information through IEC methodologies, but little focus on methodologies for behavior change. The DIP states an increased focus will be placed on counseling and some staff was trained in a breastfeeding/complementary feeding course on negotiation, but no other

attempt to improve counseling skills was seen. The quality checklists do focus on reaching an agreement with mothers to make a change, but staff carries this out in a very mechanical manner, without any real understanding of "negotiating" with the woman. Negotiation is not telling a woman what she should do and an agreement is not reached by telling a woman-now go home and do these things, okay?

Project staff has also received training on positive deviance, a potentially very powerful tool for behavior change. But staff lacks an overall understanding of how to use this tool for more than just nutritional rehabilitation. The project should seek more information on BCC methodologies and select one, maximum two methodologies to pilot test, such as positive deviance, Hearth model, negotiation, support groups, etc. All educational activities should have a behavior change focus but it is important to concentrate staff energy into a limited number of new concepts.

One of the challenges of working in this area is that it is rapidly growing and has a large number of migrants from other parts of Bolivia. In some areas many of the women are not fluent in Spanish and only a limited number of CEPAC staff speak Quechua. One of the courses planned for staff during this project was English. The course was started but interest and commitment were low. It is suggested than instead of continuing with a course in English, CEPAC field staff be trained in Quechua.

c. Capacity Building Approach

(i) Strengthening the PVO Organization

BHR/PVC funding has helped IEF in a number of ways by:

- Supporting a full time position at headquarters
- Supporting development of skills in nutrition and vitamin A, such as community based programming, nutrition surveys, and other activities
- Facilitating IEF's entry or expansion in focal countries (Malawi, Guatemala, Honduras, Eritrea/Ethiopia, Bolivia). This is very important to a smaller organization, as non-restricted funding for exploratory activity is limited
- Increasing institutional learning by facilitating participation in inter-institutional collaborative activities such as CORE, CSTS and other groups
- Increasing institutional experience in community based programs that have application to other programs with similar public health strategies, such as river blindness and trachoma control.

The IEF HQ representative for this project was hired in 10/00 and has limited Child Survival experience. In order to increase her Child Survival knowledge and skills for this position she has been very active in participating in CSTS and CORE Group activities (Nutrition workshop, IMCI, KPC/LQAS) and also attended a Tufts University course on monitoring and evaluating nutrition programs. She is also an active member in the CORE Nutrition working group and attended the International Vitamin A Consultative Group meeting in Vietnam earlier this year. She has been able to establish good communication with USAID/BHR/PVC staff for additional support and technical guidance. Through the increased capabilities of the IEF HQ representative, IEF has been able to increase institutional capacity in implementing integrated health programs.

On an institutional level, IEF completed a DOSA (Discussion Oriented Organizational Self-Assessment) assessment in 1998 and again in early 2001. IEF staff also employed the technique of Appreciate Inquiry to further enhance their understanding of institutional needs in order to develop a concrete plan for institutional capacity building. IEF plans to conduct a follow up DOSA at the end of 2002 or early 2003.

According to IEF, the real value of the DOSA exercise was to provide a time for all IEF staff to critically self-reflect on what-and-how they do business. "Even as a small organization, we have real differences on how capacity areas are perceived and interpreted by different staff. The DOSA facilitation process helped keep the discussions positive and productive. Perhaps one way to evaluate our application of DOSA is the comparison of the response by some staff before DOSA had taken place (questioning the value of time taken away from the office), and their response afterwards (general agreement that it was time well spent)."[2]

Based on the DOSA experience, IEF implemented a consolidation of strategic plans emphasizing sustainable service delivery. Concrete steps taken include:

- Completing strategic plan, communicated and approved by the Board of Directors.
- Increasing Board of Director involvement in fundraising (increased events, evaluation of return on investment of fundraising activities).
- Developing staff skills through training such as Quality Assurance and Project Cycle Management,
- Developing a network of persons skilled in business planning, financial management, state of the art surgery, and eye hospital planning,
- Improving headquarters communication and monitoring (weekly meetings, and quarterly programmatic reviews),
- Improving areas of administration (revised job descriptions and performance evaluation process, and simplified in-house procurement policies),
- Continued encouragement of formal staff presentations, and documentation of results (articles, presentations etc),

One of IEF's most important lessons learned through working with this CS grant has been learning how to partner more effectively. A tremendous amount of effort has been dedicated to formalizing, and then fine tuning the agreement between IEF and CEPAC. The CS grant also afforded IEF with their first opportunity to work in South America.

(ii) Strengthening Local Partner Organizations

CEPAC is the implementing partner of this CSP, receiving intensive TA from IEF via the Project Advisor. The Project Advisor hired in 2/00 recently left his position and has been replaced by a new Bolivian Project Advisor. This change makes a revision of the roles and responsibilities of IEF and CEPAC a critical issue at this time.

[2] Memo from John Barrows, Director of Programs, IEF 10/31/01.

The **Capacity Building Indicators** included in the DIP are:

1. Advance CEPAC's abilities as measured by the 35 MSH management categories to the "mature stage" (3 in the "initial" stage, 22 in the "growth" stage).

2. Improved financial systems in place:
   a. no cash shortages for monthly payments in one year period and,
   b. no duplicate entries between field and HQ.

3. Implement QA system for continuous improvement and monitoring of CS project; at least 3 QA assessments completed by end of project.

4. Increase the average number of visits made by a supervisor (MOH or CEPAC) from 2 per 6 months to 5 per 6 months.

5. CEPAC uses financial data in managerial and technical/CS decision-making.

6. Improve CEPAC's ability to present information and proposals to donors as follows:
   a. CEPAC website in place
   b. At least one proposal submitted and accepted by new donor
   c. At least one partnership developed with private corporation that provides funding or in-kind assistance.

Recommendations for modifying the indicators are included in Attachment F. In general good progress has been made in reaching the indicators and the project should be able to meet all expectations by the end of this funding cycle.

CEPAC began as an organization 11 years ago, working mainly in food security, which was expanded over the years to a greater focus on health. CEPAC became a member of PROCOSI which has helped strengthen their technical expertise, as well as increase access to funding. The CSP has been very beneficial in that it allowed CEPAC to expand their geographical influence from the municipality of Yapacaní to now include the three municipalities of the Ichilo District. One of the real strengthen of the CSP is CEPAC's ability to completely integrate CS activities into ongoing institutional strategies like the festivals, radio programs, and MU.

The main strategy for capacity building was the completion of four workshops by IEF for CEPAC; Web site development, Resource Development and Public Relations, Proposal Writing, and Strengthening the Board of Directors. By the MTE, two of these workshops had been completed.

- A Web page has been developed, but had not yet been activated at the MTE. A formal inauguration was held shortly before the MTE and the staff was very pleased with this new tool .It was unclear who has the responsibility for maintaining the website in the future.
- No proposals have yet been submitted for funding, a particular need exists for presenting a proposal for increasing water and sanitation systems in communities
- Internal problems currently plague the Board of Directors. It is anticipated that these problems will be resolved by the end of this year at which time a reorganization will take place and the workshop should then be scheduled.
- No other activities were completed for developing public awareness except the website.

With the change in the Project Advisor, it may be necessary for IEF to look for another source of TA for completing the institutional strengthening activities outlined in the DIP.

Integration within CEPAC

Good integration and a resulting synergy were seen between the CSP and CEPAC's other programs;

- CEPAC offers a more integrated package of services in the Yapacani area including early childhood development in 25 communities and agricultural production in 60 communities.
- Agriculture promoters were trained in breastfeeding and provide health education during their agricultural sessions.
- The food security component has done some education on home gardens, but more emphasis is on planting perennials (including fruit trees) and pasture (for cattle) for better soil conservation.
- CEPAC also receives USAID funding, through PROCOSI in integrated health, reproductive health, and tuberculosis. Part of the reproductive health project is the LAMM component being implemented jointed by QAP (Technical capacity building) and CEPAC (Community IEC).
- A positive complementary project with QAP has been the development of an emergency transportation plan for obstetrical emergency with a very innovative planning system which looks at the four principal barriers-money, transportation, who can travel with the woman and who can stay in the home and care for other children. This system will strengthen referrals for other health problems such as pneumonia and severe diarrhea.

Integration with MOH/Other NGOs

Coordination with the MOH is on three levels; at the District with the CEPAC's co-director of Health, at the 3 MOH Areas which work closely with the CEPAC supervisors, who also coordinate at the Sector level with the RAN. At the District and Area levels coordination is enhanced by having CEPAC staff housed at the MOH facility.

A district committee has been formed which monitors the project, and other health activities in the Ichilo province. Committee participants include CEPAC's Executive Director and Co-director of Health, the MOH District Director and Supervisor, IEF Project Advisor, and the Belgian Technical Cooperation (BTC) Project Advisor.

There is good coordination within the district with the two other main NGOs working there; the BTC and PPESSR of the Britannic Mission. Many health interventions are coordinated between the three organizations; for example PPESSR does training for RPSs in Reproductive Health, CEPAC in IMCI and TB, and BTC in Community Organization. For MOH staff training is also divided with BTC doing leadership and management training, and tropical diseases, PPESSR training in Reproductive Health, Family Planning, and logistics management. QAP also does some coordinated training in the district. The British Mission provided bicycles to some of the RPSs in the region, thus allowing CEPAC to use the funds which had been budgeted for bicycles for other purposes. BTC and CEPAC have been working together for the purchase of cold chain equipment for both Ichilo and neighboring Sara Districts. This has taken much longer than was expected, but by working with BTC it was possible to upgrade the cold chain in all HPs of Ichilo, rather than the few which CEPAC had funding for. BTC also does complementary work in water and sanitation programs.

Institutional Assessment

In 1997, Management Sciences for Health (MSH) was contracted by PROCOSI to conduct a baseline assessment of its member NGOs. This assessment is being used as the baseline from which to evaluate CEPAC's growth. The assessment was not completed by an external organization at MTE but a review was done internally and another will be repeated as part of the final evaluation. The baseline assessment classified 3 aspects as being in the initial stage and 22 in growth stage and 10 in mature. The midterm assessment found 1 initial, 15 in growth, and 19 in mature.

The methodology assesses CEPAC's level of performance in each of 6 management areas (mission and plans, leadership, organizational structure and lines of communication, financial management, human resource management and community participation). The MSH assessment found CEPAC to be strong in the areas of community participation, leadership and decentralization of decision making, creation of an organizational mission and corresponding strategies, and in overall employee satisfaction. Areas of weakness included 1) documentation and dissemination of lessons learned, administrative and field operations, and personnel policies, 2) financial reporting that meets the needs of program management, 3) financial planning that is aligned with project goals and workplans, and 4) formalization and improvements of supervision and training systems.

(iii) Health Facilities Strengthening

The principal strategies of the CSP for HP strengthening are:

- Training of MOH staff in IMCI
- Development of quality checklists
- Improving cold chain equipment
- Support to the RANs by the MU

For the most part the strategies have been initiated, but not completed. Staff has been trained in IMCI, and many re-trained but the strategy is generally still not in use. This issue was previously discussed in the Intervention-IMCI Section.

Quality checklists have been developed and have good potential for improving the quality of care, however, they are not being used by the MOH, only CEPAC. MOH staff should be trained in the use of quality checklists and encouraged to use them during supervision.

Cold chain equipment has been purchased, but in most cases not installed, or functioning. This was previously discussed in Intervention-Immunization Section.

The MU strategy should be re-evaluated with a clear focus on sustainability. It was observed during the MTE that the MUs go mainly to towns where there is already a health post. They should be going to isolated areas where the RAN is not providing services. There is a fine line between "supporting" and "replacing" the RAN. What is the objective of the MU?, to increase demand for services by temporarily providing services, to serve as a model which the MOH can

replicate in the future, to support the RAN by providing transportation and supplies, to provide clinical services or outreach..

CEPAC/IEF and the MOH need to define exactly what the objective of the MU is, and develop a prioritization of where the services could be best used without taking over the RANs responsibilities.

During the MTE communities were asked to comment on observed changes in health behaviors, the most commonly mentioned was an increased use of health facilities. The presence of the MU, especially when accompanied by a doctor has done much to improve the perception of good health care by community members.

(iv) Strengthening Health Worker Performance

The project has a two pronged approach to strengthening health worker performance; training and supervision. All training that CEPAC staff receives is also offered to the MOH. Different levels within the MOH are involved, i.e. in quality focus, the first training was attended by DHO level staff and the second by the MOH departmental level staff, in order to obtain greater commitment by the MOH. Training is further discussed in the next section.

The past strategy of workshops for training has been overused and due to lack of follow-up, has been relatively ineffective. The CSP is changing the strategy to have more on-the-job training using a system of supportive supervisory. By use of quality checklists the supervisor can identify weaknesses and enter into a dialogue with the supervisee as to causes of the deficiency, and if lack of knowledge or skills is the problem, to provide training at that moment in what the person needs to know. Increase the use of supportive supervision to provide continuous follow-up for all activities of the RAN.

Quality checklists were developed as part of a series of workshops on quality and have been quantified to be able to compare work skills among workers and to measure improvement. Quality standards for IMCI were also developed. The checklists include: community education, vaccinations, Vitamin A administration, supplies for MU, supervision techniques, IMCI, and growth monitoring

One of the areas designated by the MTE team for improvement was in the recording and use of information. Supportive supervision should be used to improve the quality of recording and using information in decision making.

Many problems still exist for motivating health workers. They were provided with motorcycles for transportation but many times lack funds to purchase gasoline to use them. The district committee needs to continue to focus on solving some of the problems such as a lack of basic supplies which many RAN's face. There are some outstanding examples of RANs who despite obstacles have been able to successfully complete their job responsibilities. This is an example where a positive deviance model could be used for training and motivating other RANs.

One of the unintended benefits of changes made in the composition of the MU was that not having doctors (usually male) on the MU teams gives the nurses (usually female) greater responsibility and allows for increased leadership development.

(v). Training

The CSP employs a cascade approach to training, with use of the DHO training team for many training activities. The development of a district level training team, instead of relying on the departmental MOH for training needs, has been an important step forward for the DHO. Suggestions for improving the effectiveness of training and BCC were previously discussed in the BCC Section.

The training scheduled for CEPAC and MOH staff has been completed as planned, the weakness is in training for the RPS.
Training completed as of 10/01:

Date	Topic	Who Attended	Who Presented
2/00	KPC Implementation	CEPAC	Andean Rural Health Care
3/00	HFA Implementation	CEPAC	IEF
6/00	Clinical IMCI	CEPAC/MOH	MOH
12/00	QA Phase I	CEPAC	Tom Davis
6/00	Web Page Development	CEPAC	IEF
6/00	Resource Development	CEPAC	IEF
7/00	QA Phase II	CEPAC	QAP
8/00	IMCI Refresher Course	CEPAC	MOH
9/00	Cold Chain Maintenance	MOH	Dismac and MOH
8/01	Refresher for IMCI	MOH/CEPAC	MOH

In addition to formal courses, CEPAC is using supportive supervision for on-the-job training for MOH staff.

Training needs to be more than just transmitting messages, but should focus on how and why people change their behavior. CEPAC should identify alternative strategies for BCC as was previously discussed. The curriculum for breastfeeding and complementary feeding change sponsored by MOH, governor of Ichilo, CEPAC, Linkages, and PROCOSI had a focus on behavior change and negotiation with good practice session. This is another example of BCC which could be expanded in the CSP.

d. Sustainability Strategy

The Sustainability Indicator included in the DIP was:

> Percentage of operating costs recovered from user fees/micro enterprise or other resource-generating scheme increased from unknown to 30%.

IEF defines sustainability as **the ability of a program to meet its operational costs through funding from consumers/beneficiaries while maintaining its orientation to the poor**, with the long-term goal of a fully self-sustained child survival program.

The main strategies for addressing sustainability presented in the DIP are:

- Improve and maintain high quality services
- Assess and meet customer demand
- Conduct a cost analysis
- Provide direct sustainability technical assistance
- Balance volume, cost and prices in a manner that keeps prices affordable for the majority, while allowing access to services for the poor.

In addition, IEF recognizes that capacity building of its own organization, of local NGOs, MOH structures and community-based institutions is essential to creating the systems necessary for sustainable development to flourish.

The cost analysis was carried out, as well as two workshops on quality. Some improvement has been seen on the quality of services, according to community perception. The study on customer satisfaction has not been conducted, nor was TA on sustainability received. A very limited amount of progress has been made toward the indicator.

The main focus of the CSP is on sustaining CEPAC through cost recovery, this is a narrow view of sustainability, and is somewhat contradictory with CS philosophy of preventing disease, not taking solely a curative focus. The CSP needs to look at what activities prevent disease and achieve long term sustainability of positive health behaviors at the community level, i.e. instead of providing Vitamin A capsules, teach use of local food sources; instead of deworming children, focus on improving hygiene and complementary projects in water and sanitation. The sustainability of health activities at the community level will be attained through having competent well trained community volunteers, a strong supportive community structure, and a strong linkage between the community and MOH services.

During the MTE communities were asked about sustaining activities, but few concrete suggestions were elicited. These types of discussions have not been held previously with communities, for example, ideas on how the RPS could be supported in the future, brought responses of "Yes, we could help them" but without definite ideas. Sharing that some communities pay the transportation costs of RPSs to attend training could motivate other communities into doing the same. Sustainability planning should be taken into account when developing signed agreements between CEPAC and the communities, as was previously discussed.

Sustainability of CEPAC

In the DIP a three step plan was presented for sustaining CEPAC as an organization:

1.Generate awareness about sustainability. CEPAC must define what it is they want to sustain and how they plan to move from a traditional, donor-driven organization, to a self-sufficient, income-generating organization.

2.Establish a solid business plan and improve cost management. Taking measures to improve productivity, lower costs, and diversify sources of funding will also be necessary to improve CEPAC's financial sustainability.

3.Develop CEPAC's capacity to generate self-earned income. The more earnings that CEPAC can generate, the more flexibility, independence, and control they will have over resources, leading to more long-term sustainability

Several strategies have been discussed, and some put into place for the economic sustainability of CEPAC.
1. The CEPAC clinic in Yapacani: With the introduction of "Basic Insurance" nationally by the MOH many health services will be offered free, this makes it more difficult for a private clinic to offer low cost services and be financially self-sufficient. The MOH subsidizes their staff so they can offer free services at MOH clinics. Private clinics that have to pay their staff can't compete. CEPAC estimates that they would only be able to recover 28% of their costs under this program. CEPAC's health center needs to provide specialized services of high quality to be able to attract patients.

2.The CEPAC Training Center in Yapacani is generating funds by being rented out to other organizations

3.CEAPC can provide specialized services such as the festivals and staff specialization that can be marketed i.e. IMCI/QA or Nutrition and Positive Deviance

One of the ideas presented during the MTE was to develop small income generating projects for RANs, to supplement their minimal salaries. The idea of selling iodized salt and fortified flour should be explored.

Sustainability Planning
Sustainability planning should be in place from the beginning, not at the end. No exit strategy has yet been developed. The IEF's Sustainability Specialist, David Green was scheduled to review the existing project and evaluate both cost recovery within the CS project (such as the sale of drugs or microenterprise) as well as revenue generating projects that could exist outside the CS project and generate funds for the project (such as establishment of an eye glass factory) to develop plans that would successfully generate revenues. A formal sustainability plan was supposed to be presented by mid-term to USAID. This consultancy was postponed and needs to be re-scheduled as soon as possible to help CEPAC define what they want to do. The MOH feels that they can sustain the MU with funds from the Basic Insurance and the municipalities, but the feasibility of this needs to be realistically analyzed. A sustainability plan needs to be developed by CEPAC and the DHO, defining what should be sustained and what concrete steps can be taken to ensure sustainability of health activities at the community level.

Another area that needs to be considered by IEF and CEPAC is the development of an overhead plan. Currently CEPAC receives no overhead to cover administrative costs. If IEF could develop set overhead for CEPAC, perhaps this could be used as a precedent for other donors.

One of the major advantages of the project expansion with the CSP is the increased level of influence and advocacy that can take place at the district level. The national government will change in 2002, which will have an effect on project implementation. Whether this effect is positive or negative will depend on CEPAC's ability to position themselves as advocates for sustainable development.

The project faces some obstacles in the future with the possibility of increased civil violence in the area due to land ownership issues and economic recession resulting in demonstrations and road blockages.

B. Program Management

1. Planning

Participatory planning was limited during proposal stage due to the new and tentative relationship between CEPAC and IEF before the proposal was funded. It was also limited during the DIP process due to the lateness in hiring the CS Advisor.

CEPAC has an exceptionally good planning system, beginning and ending with an annual institution wide meeting to evaluate yearly progress and develop a new annual plan. Each program i.e. health develops a plan which aids integration. The plan is reviewed by the entire organization after 6 months and adjusted if necessary. A monthly meeting is held for evaluation and planning based on a review of individually scheduled activities. Each staff receives a planning calendar for the year which includes CEPAC's vision and mission, and the annual plan for the organization, with specific objectives and indicators for each program.

The DIP was just recently translated, CEPAC only received a copy in Spanish two months prior to the MTE. The MOH has not received a copy. Prior to that, the impact indicators had been disseminated to CSP staff, but some were not clear due to the poor quality of the translation. The quality of the translation of the DIP was very good. The DIP should be disseminated to all principal partners. Any changes made in the indicators based on recommendations from the MTE should be carefully translated and shared with the MOH so that all staff clearly understands the objectives of the CSP.

2. Staff Training

CEPAC does not currently have a training plan for staff, but are working on developing one. There is a strong use of training opportunities as a tool for motivating staff within CEPAC. The absence of a training plan has resulted in training without having a clear plan in mind as to what the real needs of the institution or individual are. CEPAC likes to take advantage of all training opportunities, but too much training is not necessarily a good thing unless it is within the organizational strategy and the new knowledge and skills are put into practice, including the necessary follow-up and monitoring. There are numerous training opportunities through PROCOSI and other NGOs in Bolivia.

Administrative staff also needs to be trained, i.e. in administrative quality such as ISO9000 and internal audit. Computer training was provided in Santa Cruz, but not in Yapacani, it should be expanded to include staff in Yapacani. The female staff was trained to drive as part of the restructuring of the MU and elimination of staff drivers. The issue of training staff in English was previously discussed, with the recommendation to train instead in Quechua.

CEPAC human resources director feels they need more money for training, but this is an organizational issue, not specific to the CSP. The organization is very supportive of staff that is studying, i.e. several people are working on a Masters in Public Health or through

correspondence courses. Staff is given time off if they occasionally need time for educational purposes.

3. Supervision of Program Staff

Supervision of CEPAC staff is conducted both indirectly through frequent staff meetings and review of reports, and field visits for direct supervision. CEPAC staff was comfortable with the level of support they received. A quality checklist for supervisors is used occasionally during supervision visits for evaluating the quality of the work being done by CEPAC Supervisors. The supervision of RPSs and RANs was discussed in previous sections.

4. Human Resources and Staff Management

The CSP got off to a late start, the IEF Project Advisor was not in place until 2/00. CSP field staff are permanent CEPAC staff so they were able to immediately come on board, but lacked leadership in getting the project going.

Stability in the staff has been good until recently, in 5/01 the CEPAC Health Co-Manager left the project and as of 10/01 the IEF Project Advisor resigned. These changes always effect project implementation, even though the IEF position was rapidly filled and trained. CEPAC does not plan to replace the Co-Manager position, they feel the job responsibilities can be absorbed by other staff.

The relationship between IEF and CEPAC staff is positive and in general staff morale is high and job satisfaction good. How the roles and responsibilities for the project are divided between CEPAC and IEF needs to be reanalyzed due to the change in IEF Bolivia Advisor position. There is quite a bit of difference between the type of technical expertise offered by the previous Advisor and the skills of the new one. CEPAC and IEF should review the budget and weaknesses identified in the MTE and quickly make some decisions on staffing for the next 2 years. Program implementation is weakened by lack of sufficient field staff to carry out project activities.

The position of Project Assistant had been vacant during the two years of the project, except for a three month period. The project assistant position was originally intended to work into the Project Advisor position, replacing an expatriate with a Bolivian national. This has already been accomplished. The position of Project Assistant should be reviewed based on the needs of the CSP for the next two years. A part-time Administrative Assistant/Secretary position, which could provide much needed logistical and secretarial support to the CSP should be considered.

The IEF country representative receives $12,000 (20% of $60,000 salary) annually from the CSP while offering little support to the project. Due to geographical distance and lack of knowledge of public health and/or CS experience the impact of this position on the CSP is minimal. While IEF's long term strategy for providing eye care services and establishing a presence in Bolivia is positive, the CSP should not suffer from lack of adequate staffing to achieve that institutional goal. A serious revision of staff positions paid for with CSP funds needs to be made, especially for IEF staff. This should include a revision of roles and responsibilities for both CEPAC and IEF.

There is not a formal personnel manual, but policies are included in the Administrative Manual. In 1999 job descriptions were written by staff and their supervisors. There are no staff evaluations, except as part of the planning process which was previously described. Weekly staff meeting of managers provides an opportunity to discuss personnel problems. PROCOSI is providing TA on developing job descriptions and a salary schedule. CEPAC always tries to relocate staff within their organization at the end of grant funding. They see the staff as an investment and increase staff retention through offering training opportunities.

5. Financial Management

IEF needs to improve their systems to give better direction to partners on financial reporting, with a specific negotiable format for reporting. There is a lack of local control of the budget, the local office needs more budget detail from IEF or needs to develop a spreadsheet to track local expenses. IEF is not providing sufficient, nor timely information so that the IEF Bolivia Advisor can manage the budget. Insufficient training was given on budget management to the former IEF Bolivia Advisor. The new Advisor will receive a 2 day orientation in-country and a trip to HQ, including budget management training, is planned for late 2001 or early 2002. Biannual trips to IEF headquarters are planned for years 3 & 4.

CEPAC budgeting and administrative systems have been improved. The budgeting process has been decentralized resulting in greater involvement of all staff in the annual budgeting process and greater knowledge of availability of funds for better planning. An accounting system is proposed which will allow for more detailed information by program or intervention. All CEPAC projects funded through PROCOSI are audited annually plus an annual external audit of all programs.

Technical assistance has been received from IEF during two visits by HQ administrator. Unfortunately the administrator does not speak Spanish which somewhat limits communication but this was reportedly not a major problem. A computerized financial system (AIPE) was developed through TA from PROCOSI. CEPAC worked with a local programmer provided by PROCOSI who developed a system flexible enough to meet the needs of various donors.

6. Logistics

Due to the late hiring of staff, procurement of vehicles was delayed which limited the start-up of MU activities. No agreement has been signed with the Ministry of Culture and Foreign Relations to legalize the status of IEF in the country. The result has been that IEF does not have tax-free status and paid taxes on the personal belongings shipment of expatriate staff and on purchase of vehicles, which could have been avoided if the agreement was signed. The County Representative for IEF needs to take a more active role in facilitating the support the project needs to operate. As major purchases have been made for the project, the main logistical concern for the next two years is to improve the logistical capabilities of the MOH, which was discussed previously in this document.

7. Information Management

The CSP's information system has four main components:

- KPC survey which is the main instrument for measuring indicators
- Monthly epidemiological surveillance system

- CAI national information analysis system based on MOH data
- Other surveys (HFA, Nutrition Assessment)

KPC

The KPC was conducted at baseline by a consultant from another PVO. It will be repeated at final. The decision was made not to conduct a KPC at midterm due to the late start-up of the project. The KPC followed the standard CSSP/CSTS format, with the addition of some questions on mortality and health service accessibility. The KPC was of good quality, but some of the questions used in the KPC do not correspond with the project indicators. Suggestions for modifying indicators are included in Attachment F. Some improvement can be made in clarifying information from the KPC through the following suggestions:

- If the category "other" is significant, an effort should be made to classify the information. For example in DCM, 59% of the responses of women in SC/BV to the question what treatment did you give your child when s/he had diarrhea were classified as "Other".
- Greater care needs to be taken in representing information from the KPC. For example in the DIP it states that "Data from the KPC, indicated 32% of mothers brought their children to health providers for treatment for pneumonia" 32% of mothers who reported their child had rapid breathing took their children to a health provider, that does not mean they had pneumonia.
- The question on whether a mother continues to feed her child with diarrhea should not specify "smashed" food. The form in which food is prepared is not significant and could alter the answer from the mother in an attempt to measure the **quantity of all food** given during illness.
- The terms "Health facility" and "trained provider" should be defined and a classification made of mothers which mention any of the responses within the definition. As multiple answers are possible, it can not be simply calculate by adding together the responses.
- The issue of definition of ORT has been previously discussed in the DCM Section.

IEF and CEPAC staff should be trained in KPC methodology and the use of Epi-Info 2000. Through PROCOSI, another NGO who is conducting a KPC next year should be identified. CEPAC/IEF staff should request to be involved in the KPC to better learn the methodology. Contact should also be made with other NGOs to identify a possible source of training in Epi-Info.

A good system was developed for disseminating the results of the KPC to communities using simple pamphlets with key results.

Epidemiological surveillance system

The monthly epidemiological surveillance system contains 77 indicators, about 80% of which are the same as the MOH's information system. Each MU fills out a weekly report of their visits to the communities and this is compiled monthly by the CEPAC Supervisor for each area. PROCOSI has been working with CEPAC to computerize the system to simplify the tedious task of adding up the information. The main question is how the information is being used and if it is supporting the MOH's system. The strengthening of the HIS is not a focus of this project and other priority activities need to be completed in the next two years. In future projects CEPAC

should look at how to strengthen the MOH's system, not set up a parallel system and how to minimize the collection of data to those elements used directly for decision making.

The person who was assigned to manage the HIS left CEPAC in 5/01 and CEPAC does not plan to replace this position. The position was paid 35% of their salary with CS funds and had the responsibility for managing, monitoring and evaluating CEPAC's epidemiological surveillance system.

CAI

Bolivia has an excellent national system for the analysis of health information called CAI (Committee for Analysis of Information). The system is designed to function at all levels of data collection; community, Health Post (sector), Municipality (area) and District. At the health post, area and district levels there are regular meetings to look at the information collected through the MOH information system and to use it for decision making. The system is quite successful, except at the community level. At the other levels simple graphs are used to show coverage levels. It was planned in the DIP to do community CAI as part of the festival. This doesn't really work as many communities are represented. The data that is being used by the MU is sector level, not community level.

A mechanism should be developed to conduct a CAI at the community level once per quarter in all communities. This could greatly increase understanding of health issues and local decision making ability.

A Community Based Information System is being developed which could strengthen the CAI system. The DHO for Ichilo and neighboring Sara Districts, BTC, and the Federation of RPSs developed a draft format for use by RPSs. The objective is to develop the RPSs' skills in interpreting and analyzing information, to strengthen community participation in information analysis, use of information in decision making, and to strengthen the relationship between the community and the health system. The system works with a RPS monthly report form with indicators, 24 cards, 12 with pictures representing indicators and 12 with instructional text and an instructional manual. It can be used with groups of RPSs to compare data between communities and to look for common solutions and looks at about 65 indicators. CEPAC is looking for supplementary funds to implement this activity in order to increase community participation.

Other Sources of Information

The HFA and Nutrition Assessment were both instruments to aid in monitoring project progress. It is unclear whether they will be repeated as part of the final evaluation.

Some CEPAC & IEF staff was taught LQAS (Lot Quality Assurance Sampling) by Linkages to look at breastfeeding practices. There is a lack of understanding of how to use this data and it is being erroneously compared with data from the KPC. The use of too many studies and sampling methodologies is not comparable and confusing for staff and the MOH.

RPSs conducted a census in some communities but data has not yet been compiled. A map was completed in each community but it was found in the MTE that the maps are mainly used for location houses, rather than to track health information. The project could benefit from use of some qualitative methodologies for understanding more in-depth issues. Two suggestions have

been made in this document; use of focus groups of RPSs to better understand volunteer retention and with mothers to understand use of traditional fluids during diarrheal episodes.

8. Technical and Administrative Support

The CSP has received TA from IEF, PROCOSI, and from other contracted specialists.

a. The IEF backstopper, Gwen O'Donnell was hired one year after the project began. A consultant was hired (a former IEF employee) to help with writing the proposal and the DIP. No one providing backstopping from 10/99 to 10/00. Ms. O'Donnell has visited the project three times. In 10/00 to help re-write the DIP, in 3/01 to 5/01 for 2 ½ months to do the Nutrition Survey, and in 10/01 for the MTE. Ms. O'Donnell is also responsible for backstopping another MCH health project in Malawi. She is budgeted for 35% of her time to be dedicated to the CEPAC Bolivia project but actually spends approximately 50% of her time on the project.

   TA from IEF was also provided to CEPAC on budgeting and partnership issues in visits by John Barrows and Ed Hendersen.

b. TA from PROCOSI has included work with the HIS, complementary feeding, computerized financial system, developing job descriptions and a salary schedule.

c. In June of 2000, Jim Clement, MBA, conducted the cost analysis study, Tom Davis provided training in the first quality workshop and QAP facilitated the second workshop. A good relationship has been developed with Linkages for TA in breastfeeding and complementary feeding.

The staff reported being pleased overall by the TA which was received, but the lack of a backstopper for the first year greatly limited the initiation of the project. Both the quality workshops and the sustainability study were postponed due to the inability of consultants to conduct the workshops according to the work plan.

TA will be required during the last half of the project in

BCC methodologies to help define future directions for CEPAC
The third quality workshop by QAP
Sustainability study should be completed as soon as possible
Supportive supervision by NUR University in Santa Cruz Bolivia (scheduled)
KPC methodology and Epi-Info
Measuring the impact of IEC strategies

D. Conclusions and Recommendations

The project got off to a slow start and is still trying to recover lost time. Good progress has been made on strengthening IEF, CEPAC and the MOH, but much work still needs to be done on involving the community and RPSs in project activities. A broadening of the definition of sustainability is needed to include health behaviors and activities, not just the sustainability of CEPAC. It is critical that the issue of staffing is reviewed, there is a great deal of field level work to be done, and a lack of adequate staff to carry out project activities.

RECOMENDATIONS

- Retraining on use of the IMCI reporting format should be carried out through supervision visits

- The MU should immediately begin implementing IMCI, to serve as a model for the RANs
- The CSP and MOH should move forward as soon as possible on training RPSs on the four project interventions
- The CSP should teach communities and RPSs rational drug use.
- The CSP should avoid encouraging the use of home prepared oral rehydration solution
- The CSP should conduct a simple qualitative study of what liquids are traditionally given for children with diarrhea, (rice water, herbal teas, etc.) to encourage their use in education messages and add to the KPC.
- It is recommended that RPSs not be encouraged to use cotrimoxazole in the treatment of pneumonia during this CSP. Due to the low level of knowledge found during the MTE, and the current lack of a clear policy by the MOH, RPSs should be taught home care for ARI, recognition of danger signs for referral, and follow up of cases through home visits.
- CEPAC/IEF/DHO should develop and implement a nutrition strategy on a district wide basis.
- CEPAC/IEF/DHO needs to mount a strong advocacy strategy to get the central MOH to modify the distribution of vaccines and supplies based on the results of the 2001 Census.
- As the nurses now have increased responsibility for operating a CEPAC vehicle, they should be taught basic mechanics to enhance safety in driving in isolated areas.
- Agreements should be formally signed with communities to ensure their participation in health activities and sustaining the RPS.
- RANs should receive TA to develop an annual budget to present to the municipality to be included in their annual plan.
- Motivate the communities to demand health services and prioritize health through better communication about the issues surrounding health in the area, including involving Central and Sub-central levels of community organizations to prioritize health within the municipal budget
- Motivate municipal leaders to make a commitment to health, including payment for re-supply of gas for the cold chain and gasoline for transportation of health staff to outlying communities
- Advocate for the inclusion of funds for health activities in the next annual municipal plan (POA) as committed funds, using counterpart funds to leverage municipal funds.
- It is recommended that CEPAC maintain the goal for number of communities with RPS set during the MTE presentation (Attachment F) of 140 out of 175 communities. Increase the coverage of communities with a RPS from 40% (70/175) to 80% (140/175).
- In the third annual report, CEPAC should present a list of the communities it will work in and the population of those communities.
- The CSP should develop a strategy for strengthening the relationship between the RPS-Community-Health Personal including disseminating information during monthly community meetings about the role and activities of the RPS and the CSP.
- A data base of RPSs should be developed
- Discussions should be held with RPSs to develop a strategy for motivating volunteers.
- Some of the areas are providing free medical care to the RSP, but this needs to be implemented in all areas.
- MOH and CSP materials should be given to the community, not to the individual RPS. A documentation system for assuring that the community officially receives the materials, confirmed by a signed document, should be developed.

- The CSP/DHO (RAN and MU) should provide increased supervision and follow-up to RPSs to improve technical skills and show solidarity and support.
- The CAI at the sector level is a missed opportunity to provide sustainable, low cost, continuous support to the RPS and should be strengthened.
- The project should implement a written method for sharing information with the communities 2-4 times a year.
- A methodology for monitoring changes in behavior at the community level needs to be developed, including a role for the RSP in this process.
- The CSP with the DHO should review the content of all educational materials to define where gaps exist and develop complementary content and methodologies to improve message delivery and content.
- The planning of the chronology of educational activities should respond to the epidemiological cycle in the area.
- Strengthen the abilities of RPS, RAN and the DHO training team to provide effective education
- The project should seek more information on BCC methodologies and select one, maximum two methodologies to pilot test, such as positive deviance, Hearth model, negotiation, support groups, etc. All educational activities should have a behavior change focus but it is important to concentrate staff energy into a limited number of new concepts.
- It is suggested than instead of continuing with a course in English, CEPAC field staff be trained in Quechua.
- MOH staff should be trained in the use of quality checklists and encouraged to use them during supervision
- CEPAC/IEF and the MOH need to define exactly what the objective of the MU is, and develop a prioritization of where the services could be best used without taking over the RANs responsibilities.
- Increase the use of supportive supervision to provide continuous follow-up for all activities of the RAN.
- Supportive supervision should be used to improve the quality of recording and using information in decision making.
- Sustainability planning should be taken into account when developing signed agreements between CEPAC and the communities, as was previously discussed.
- A sustainability plan needs to be developed by CEPAC and the DHO, defining what should be sustained and what concrete steps can be taken to ensure sustainability of health activities at the community level.
- The DIP should be disseminated to all principal partners. Any changes made in the indicators based on recommendations from the MTE should be carefully translated and shared with the MOH so that all staff clearly understands the objectives of the CSP.
- The position of Project Assistant should be reviewed based on the needs of the CSP for the next two years. A part-time Administrative Assistant/Secretary position, which could provide much needed logistical and secretarial support to the CSP should be considered.
- A serious revision of staff positions paid for with CSP funds needs to be made, especially for IEF staff. This should include a revision of roles and responsibilities for both CEPAC and IEF.

- IEF and CEPAC staff should be trained in KPC methodology and the use of Epi-Info 2000. Through PROCOSI, another NGO who is conducting a KPC next year should be identified. CEPAC/IEF staff should request to be involved in the KPC to better learn the methodology. Contact should also be made with other NGOs to identify a possible source of training in Epi-Info.
- A mechanism should be developed to conduct a CAI at the community level once per quarter in all communities. This could greatly increase understanding of health issues and local decision making ability.

E. Results Highlight: Ichilo Province Nutrition and Health Behaviors Survey

IEF/CEPAC conducted a nutritional survey in Ichilo Province, Santa Cruz, Bolivia in the spring of 2001 to generate baseline data to design an effective nutrition intervention as part of IEF/CEPAC's child survival project. Six hundred homes were visited, chosen at random from a 30-cluster sampling. The quantitative component of the survey consisted of a biochemical analysis of mothers' hemoglobin concentration to detect iron deficiency anemia (IDA). Children under five were analyzed for IDA, vitamin A deficiency, and protein energy malnutrition (PEM). A Hemocue machine measured hemoglobin concentration, a dried bloodspot retinol indicator measured vitamin A deficiency, and anthropometric measurements (weight-for-height, weight-for-age, and height-for-age z-scores) measured PEM. A sub-sample of caretakers and children also gave feces samples to be analyzed for worm eggs, larvae, protozoan trophozoites, and cysts.

The DBS methodology used in this study made it difficult to precisely determine the degree and potential causes of VAD in this population. Nonetheless, mean serum retinol concentrations are likely to fall between 19 and 22 mcg/dL, suggesting that regardless of DBS quality, nearly half the population is likely to fall close to or below the currently accepted cutoff for vitamin A sufficiency of 20 mcg/dL.

Parasites were very common among women and children: approximately 62% of children and 75% of mothers had one or more types of parasites. Among children, parasitic infection became more common with increasing age ($p< 0.001$). Children were more likely to have parasites if their mother did ($p = 0.03$). The degrees of trichuris (pinworm) and uncinarias (hookworm) burden were related to the iron status of anemic women (i.e. 40% of mothers). Pinworm prevalence was relatively rare, found in 6% of children and 7% of mothers. Hookworm, however, was found in 16% of children and 26.8% of mothers. These worms may be the most likely parasites to adversely affect iron status in both mothers and children.

Overall, 41.7% of children were anemic. In adjusted analyses, the odds of being anemic were approximately 1.5 times greater among boys compared to girls ($p < 0.05$), and anemia was a particular problem between 6 months and 3 and-a-half years of age. Using a field to defecate was highly predictive of anemia, with the odds of being anemic nearly 7 times greater among children who defecated outdoors compared to those who used a latrine ($p < 0.001$). Children whose families had animals available for both consumption and sale were half as likely to be anemic ($p = 0.005$). Stunting was also significantly related to the presence of anemia in children ($p=0.007$).

The majority of women, 88.8%, reported ever breastfeeding, with 59% reporting initiating breastfeeding within an hour of birth. Over 50% of women reported exclusively breastfeeding until between 3 and 6 months of age. The average age of weaning reported (question 51) was 14.6 ± 6.9 months, ranging from 0.2 to 51 months.

An examination of the distributions of the anthropometric measures shows that the majority of children had appropriate weight for age ($\geq$ -1 Z-score), although over 30% were underweight for their age (< -1 Z-score). The majority of children were short for their age but had appropriate weight given their height. As expected, wasting in the population was rare, but stunting was common. Age was a dramatic contributor to rates of stunting, and socioeconomic variables suggest that poverty may also impact stunting.

F. The Action Plan

The Action Plan was developed during November, after the final version of the MTE evaluation document was received and translated into Spanish. CEPAC/IEF invited all of the members of the evaluation team (except the external consultant and HQ representative) plus the resource people who participated in the analysis of information to a workshop to develop the Action Plan. Representatives from CEPAC, IEF, MOH, and BTC were invited. As the evaluation team developed the recommendations included in this document, they were able to move forward on implementing the recommendations immediately. The process of involving the MOH in the evaluation has served to strengthen their commitment to improving the project over the next two years. The following is a summary of the MTE follow-up workshops that took place in November and December.

1. November 6th Workshop

Since the midterm evaluation (MTE), IEF and CEPAC undertook three workshops to analyze and implement proposed recommendations. CEPAC personnel, MOH staff and health workers participated in the first meeting at the District Health Office on November 6th, entitled "Analysis Workshop on MTE Recommendations and Suggested Indicator Changes." Participants reviewed indicators in the DIP table. They defined verification sources for each indicator, the frequency of measurement, and the activities necessary to achieve results. (Refer to attachment #1) Following is a list of six key MTE recommendations and subsequent agreements made in the workshop. The agreements have been incorporated into the 2002 workplan.

MTE Recommendation No.1: Sensitize municipalities and community leaders to demand that the budget provides for vehicle maintenance and fuel to ensure proper and efficient functioning of the cold chain.

Agreement No.1:

Demand that the municipalities provide gas according to the signed agreement; require that each area present a synopsis of real needs (considering revised October supervisor forms, an equipment assessment made by the Belgian Technical Cooperation, and a review of all supervision reports); recover stabilizers to increase refrigerator amperes necessary for the cold chain

MTE Recommendation No.2: Promote a meeting with the MOH headquarters in Santa Cruz to revise the distribution of inputs based on the new population data from the 2001 Census.

Agreement No.2:

The three Areas will prepare a request for inputs based on population figures from the last census to be discussed with the MOH headquarters in Santa Cruz.

MTE Recommendation No.3: Support the consolidation of the District Training Center; define content & methodology for the training of trainers; strengthen the ability of trainers at the District level; retrain all health workers on IMCI norms.

Agreement No.3:

Training of trainers content, activities and methodology will be planned in early 2002, reinforcing District training modules and developing actions to improve the skills of the District Training Team.

MTE Recommendation No.4: Form community agreements to ensure community participation in health activities; define the role and activities of RPS in monthly community meetings; strengthen the relationship between RPSs, health personnel, and communities.

Agreement No.4:

Incentives will be provided to encourage active participation by RPSs and health workers in community meetings to develop activities, define goals, and identify health problems; Area representatives will jointly revise the District's document on RPS functions and responsibilities that will be distributed to health sector and community representatives; a RPS workshop will be developed to exchange experiences, improve community and sector relationships, and improve overall morale and job performance; exceptional RPSs from each Area will be chosen as role models and peer educators; mechanisms that promote good use of information will be defined and analyzed in the workshop (e.g. forms that facilitate communication between the RPS, community, and health workers).

MTE Recommendation No.5: Create & implement a nutrition education program at District level

Agreement No.5:

In order to analyze the nutrition problem of Ichilo District, prioritize problems and define possible intervention strategies in a nutrition workshop on the 18th and 19th of December.

MTE Recommendation No.6: Define a methodology to monitor behavior change at all levels, including RPSs; implement continuous monitoring of RPS work by health workers and the mobile health teams; make use of behavior change methodology in all community education activities; improve the monitoring of health worker activities.

Agreement No.6:

Worker supervision will be implemented to control for mistakes in information management; RPSs will be invited to the Area IAC (Information Analysis Committee); the IAC of each area will have a rotating agenda in order that the same topics are addressed in each sector; the District, CEPAC, and IEF will jointly identify weak points in the monitoring and supervision of activities to design a plan to improve the system.

2. November 7th Workshop

On November 7th, IEF participated along with CEPAC staff in the monthly mobile health team meeting to develop activities based on MTE recommendations. The meeting focused on identifying errors in information collection and management. Participants developed a format to record daily activities. A second form was also designed to record monthly follow up meetings.

3. November 19th Workshop

On the 19th of November a third meeting took place between IEF and CEPAC staff to analyze and revise quality improvement indicators for the mobile health teams. The supervisor from each Area made a presentation of difficulties identified in their respective Area, followed by a group discussion on possible solutions. Results of the meeting are detailed on the following page.

CHALLENGES ENCOUNTERED	PROPOSED SOLUTION	DATE OF COMPLETION
1. The supervisors do not rely on the indicators table, creating confusion in data collection and analysis as the denominator and the source of information are not consistent.	**1.1** IEF's Technical Assistant and CEPAC's Health Director revise the indicator table to determine the numerator and denominator of indicators that are not clear. 1.2 Reorient the mobile health supervisors to use the new table developed in the 12/3 meeting.	12/03/01 12/05/01
2. Some indicators do not correspond to proposed standards.	**2.1** Resolve this issue in the meeting on December 3rd.	12/03/01
3. Supervisors could not explain the reason why some sectors had very low coverage rates and why certain IMCI norms were not followed.	**3.1** In the next meeting that focuses on CS indicators, involve health workers from each Area, in addition to MOH District Supervisors, to realign collected data and implement quality improvement measures (i.e. analyze problems encountered, look for solutions to improve activities that demonstrate poor indicator results, propose interventions and develop activity plans). **3.2** Standardize data sources between sector health workers and area supervisors.	22/02/02 02/22/002
4. Presented data does not reflect the actual situation in all sectors due to the fact that the mobile health teams did not complete visists in October due to several reasons (most notably because of heavy rains).	**4.1** Request that the District allows all sectors to participate in taking steps for CS Quality Improvement in order that sectors and areas gain the ability to measure health status changes and that the role of the mobile health teams become more of supervision and training.	01/07/02
5. The denominators of San Carlos's data only correspond to one sub-sample of the population and are not standardized among all the indicators.	**5.1** Supervise all sectors in each Area with District supervisors and District representatives to learn about the realities in each Area and determine whether or not using samples is necessary in data collection.	The last week of January
6. Quality Improvement (QI) measures have not been implemented in Area hospitals.	**6.1** Create QI teams in Area hospitals and initiate the process of improving the CS program.	February 2001

Attachment #1

REVISED CS INDICATORS TABLE
CEPAC/IEF/MOH WORKSHOP, NOVEMBER 6, 2001

EPI Intervention				
DIP Indicator	**Revised Indicator**	**Source**	**Frequency**	**Activities Necessary for Results**
1. Increase % of children 12-24 months of age fully immunized from 40% (Y) & 25% (SC/BV) to 85% in all areas.	**1**. Increase % of children 12-23 months of age fully immunized from 40% (Y) & 25% (SC/BV) to 75% in all areas.	• Child and maternal health cards • EPI record book	Quarterly Midterm Final (KPC)	• Train mothers on the importance of health card • Improve health center record keeping, and accurate health card reporting • Record data from immunization campaigns at health centers • Ensure mobile health teams carry EPI Record book when they make community visits to register administered vaccines
2. Increase % of children fully immunized before one year of age (<13 mo.) from 14% (Y) & 12% (SC/BV) to 50% in all areas.	**2.** Increase to 50% children 12-23 m who were fully immunized (excluding measles) before their first birthday (< 12 months) in all areas.	• Child and maternal health cards • EPI record book	Quarterly Midterm Final (KPC)	• Same as above
3. Increase % of WCBA with at least two TT vaccinations reported on maternal health card from 30% (Y) & 25% (SC/BV) to 60% in all areas.	**3.** Increase number of women with children < 2 years of age who have received at least two TT vaccinations reported on maternal health card to 60% in all areas.	• TT vaccination cards • Antenatal clinic records	Quarterly Midterm Final (KPC)	• Improve use of TT cards • Improve use of EPI Record book • Improve follow up care of pregnant women

4. Increase availability of all vaccines at health facilities to 80% (current levels: TB—22%, Polio—42%, DPT--42%, Measles--29%, and TT--42%).	**4**. Increase availability of all vaccines at health facilities to 80% (current levels: BCG—22%, Polio—42%, DPT--42%, Measles--29%, and TT--42%).	• Registers on Vaccine Availability • Supervisor reports	Quarterly Midterm Final (KPC)	• Implement use of forms that document requests, receipt and stocks of vaccines • Improve the distribution of medical supplies (e.g. the functioning of the SIAL system)
5. Increase from 66% to 100% the number of facilities that have a community vaccination registry.	No Change	• Vaccination registry	Quarterly Midterm Final (KPC)	• Define record keeping strategy and information management with sector input
6. New MOH Vaccine/Cold Chain Coordinator visits each facility monthly and reports checklist data to Ichilo Province partners (IEF/CEPAC, Belgian Technical Cooperation).	**6.** New MOH Vaccine/Cold Chain Coordinator visits each facility quarterly and reports checklist data to Ichilo Province partners (IEF/CEPAC, Belgian Technical Cooperation).	• Reports • Check lists	Quarterly Midterm Final (KPC)	• Design a format for reports and checklists • Suggest that the District Supervisor present reports to the District Health Committee
Nutrition Intervention				
DIP Indicator	**Revised Indicator**	**Source**	**Frequency**	**Activities Necessary for Results**
1. Increase coverage of VA (2 doses) of 12-24 month olds from 3% (KPC) to 85% as verified on health card.	**1.** Increase coverage of VA (2 doses) of 12-23 month olds from 3% to 75%.	• SNIS • Child health card	Quarterly Midterm Final (HFA)	• Revision and improvement of records
2. Increase coverage of VA to post-partum women (1 mo.) from 0.7%(Y) and 2%(SC/BV) to 50% in both areas as verified on the health card.	**2.** Increase coverage of VA to postpartum women (within 1 mo. postpartum) from 0.7% Y and 2% SC/BV to 60% in all areas.	• EPI Record book • Survey of mothers with children < 2 years of age	Quarterly Midterm Final (KPC)	• Revision and improvement of records

3. Increase % of pregnant mothers receiving iron tablets from 15.6%(Y) & 12.7%(SC/BV) to 50% as verified on health card.	**3.** Increase % of pregnant women who received iron tablets from 15.6%(Y) & 12.7%(SC/BV) to 60%	• Prenatal clinic records	Quarterly Midterm Final (KPC)	• Revision and improvement of records
4. Increase % of children 6-24 months of age who consume vegetables rich in VA from (a.) at least twice in 24 hrs, 43% (Y) and 29% (SC/BV) to 70% (Y) and 60% (SC/BV). (b.) At least five times in 7 day period, 43% (Y) and 48% (SC/BV) to 70% in both areas.	**4.** Increase the % of children 6-23 months of age who consume fruits and vegetables rich in VA from: a) at least twice in 24 hrs from 43% to 70% (Y), and from 29% to 60% (SC/BV); b) At least five times in 7-day period, from 43% (Y) and 48% (SC/BV) to 70% all	• Survey of mothers with children 6-23 months of age	Midterm Final (KPC)	• Strengthen education activities • Improve education session records
Breastfeeding Intervention				
DIP Indicator	**Revised Indicator**	**Source**	**Frequency**	**Activities Necessary for Results**
1. Increase exclusive breastfeeding from 43% (Y) and 17% SC/BV in children 0-6 months of age, to 70% (Y) and 50% (SC/BV).	**1.** Increase exclusive breastfeeding from 43% to 70% (Y) and 17% to 50% (SC/BV) in children 0-5 months of age	• Survey • Child health card	Midterm Final (KPC)	• Standardize exclusive breastfeeding concept • Train personnel • Record info on child health card
2. Increase % of women continuing to breastfeed at 12-24 months from 40%(Y) and 40%(SC/BV) to 60% in both areas.	**2.** Increase % of women continuing to breastfeed from 20-23 months from 40% (Y/SC/BV) to 60% in all areas	• Child health card • Survey of moms with children 20-23 months of age	Midterm Final (KPC)	• Strengthen exclusive breastfeeding education sessions • Record info on child health card
3. Increase % of children initiating breast-feeding immediately post-partum from 64% (Y) and 45% (SC/BV) to 80% (Y) and 65% (SC/BV).	**3.** Increase % of children initiating breast-feeding within 1 hour postpartum from 64% to 80% (Y) and 45% to 65% (SC/BV)	• Survey	Quarterly Midterm Final (KPC)	• Implement the Clinic History of Newborns • Strengthen bfing educat. sessions • Improve recording on hlth card

Diarrhea Intervention				
DIP Indicator	**Revised Indicator**	**Source**	**Frequency**	**Activities Necessary for Results**
1. Increase % children < 2 yrs. w/diarh. That receive more breastmilk from 24%(Y) & 16% (SC/BV) to 50% (Y) and 40% (SC/BV).	**1.** Increase % children < 2 yrs. with diarrhea that receive the same or more breastmilk from 24% to 50% (Y) and 16% to 40% (SC/BV).	• Survey of mothers with children less than two years of age	Midterm Final (KPC)	• Revise KPC • Revise guidelines of recording sicknesses on health card • Register in the child's clinic history (external consultation) • Strengthen education sessions
2. Increase % of children < 2 yrs. W/diarh. that receive more food from 17% (Y) & 19% (SC/BV) to 40% in both areas.	**2.** Increase % of children < 2 yrs. with diarrhea that receive the same or more food from 17**%** (Y) & 19% (SC/BV) to 40% in all areas.	• Survey of mothers with children less than two years of age	Midterm Final (KPC)	• Revise KPC • Revise guidelines of recording sicknesses on health card • Register in the child's clinic history (external consultation) • Strengthen education sessions
3. Increase the % of mothers that give increased fluids from 39% (Y) & 44% (SC/BV) to 80% (both sites).	**3.** Increase the % of mothers that give more fluids from 39**%** (Y) & 44% (SC/BV) to 80% in all areas	• Survey of mothers with children less than two years of age	Midterm Final (KPC)	• Revise KPC • Register in the child's clinic History (external consultation) • Strengthen education sessions
4. Increase use of ORT from 27%(Y) & 17%(SC/BV) to 60%(Y) and 50% (SC/BV).	**4.** Increase use of ORT from 27% to 60% (Y) & 17% to 50% (SC/BV)	• Survey of mothers with children less than two years of age	Midterm Final (KPC)	• Revise KPC • Register in the child's clinic History (external consultation) • Guarantee ORT in all HCs.
5. Increase % of mothers taking child to health facility for prolonged or bloody diarrhea from 56% (Y) 58% (SC/BV) to 80%.	**5.** Increase % of mothers taking child to health facility for prolonged diarrhea or bloody diarrhea from 56% (Y) 58% (SC/BV) to 80%	• Survey of mothers with children less than two years of age	Midterm Final (KPC)	• Revise KPC • Register in the child's clinic History (external consultation) • Strengthen education sessions
6. Increase % of health workers accurately treating diarrhea from 30% (est.) to 60%.	**6.** Increase % of health workers treating diarrhea using SCM from 30% to 60%.	• Check lists • Clinic histories • Supervision reports	Midterm Final (HFA)	• Define who applies checklists And for what level • Distribute guidelines on SCM of diarrhea • Strengthen education sessions

Pneumonia Intervention				
DIP Indicator	**Revised Indicator**	**Source**	**Frequency**	**Activities Necessary for Results**
1. Increase the number of RPSs with a pharmacy kit with cotrimoxizole from 15 to 200.	*Indicator deleted because RPS don't distribute cotrimoxizole*			
2. Increase % of mothers seeking care from a trained provider when child has signs of pneumonia from 44% (Y) and 47% (SC/BV) to 80%.	**2.** Increase % of mothers seeking care from a trained provider when child has signs of pneumonia from 44% (Y) and 47% (SC/BV) to 80% in all areas	• Survey	Midterm Final (KPC)	• Distribute SCM guidelines for pneumonia • Strengthen education sessions
3. Increase % of health workers accurately treating pneumonia from 30% (est.) to 60%.	**3.** Increase % of health workers using SCM for treating pneumonia from 30% (est.) to 80%.	• Checklists • Clinic histories • Supervision reports	Midterm Final (KPC)	• Define who applies the check lists and for what level • Distribute SCM guidelines for pneumonia • Strengthen education sessions
Cross-Cutting Indicators				
DIP Indicator	**Revised Indicator**	**Source**	**Frequency**	**Activities Necessary for Results**
1. Increase the coverage of communities w/RPS from 40% to 80%.	**1.** Increase the coverage of communities with a RPS from 40% (49 com.) to 80% (89 com.) from a total of 122 communities	• District registry of communities with RPSs	Midterm Final (HFA)	• Implement RPS registry at the District level • Integrate RPSs to sectors
2. 100% of CEPAC health and MOH counterparts trained in clinical IMCI.	**2.** 90% of CEPAC health and MOH counterparts trained in clinical IMCI.	• Reports • Training records	Quarterly Midterm Final (HFA)	• Define the implementation of clinical IMCI w/the MOH • Implement strategies to distribute guidelines
3. 100% of RPSs trained in community-level IMCI.	**3.** 90% of RPSs trained in all five of the project interventions.	• Reports • Training records	Quarterly Midterm Final (HFA)	• Include RPS training models in District information analysis meetings • Conduct training

Capacity Building Indicators				
DIP Indicator	**Revised Indicator**	**Source**	**Frequency**	**Activities Necessary for Results**
1. Advance CEPAC's abilities as measured by the 35 MSH management categories to the "mature stage" (3 in the "initial" stage, 22 in the "growth" stage).	**1.** Advance CEPAC's abilities as measured by the 35 MSH management categories to the "mature stage" (Baseline: 3 in the "initial" stage, 22 in the "growth" stage).			
2. Improved financial systems in place: a. no cash shortages for monthly payments in one year period and, b. no duplicate entries between field and HQ.	No Change	• Project documents • Financial reports	Quarterly Midterm Final	• Request financial reports from the beginning of the project until 12/01 from CEPAC • Request quarterly financial reports from CEPAC beginning 1/02 until the end of project
3. Implement QA system for continuous improvement and monitoring of CS project; at least 3 QA assessments completed by end of project.	No Change	• Monitoring and quality improvement reports	Quarterly Midterm Final	• Include personnel from the Areas and the District chief in evaluation sessions • Define the source and record of data
4. Increase the average number of visits made by a supervisor (MOH or CEPAC) from 2 per 6 months to 5 per 6 months.	**4.** Increase the average number of visits made by AREA supervisors (MOH or CEPAC) from 2 per year to 5 per year.	• Supervision reports • Supervision agenda	Bimonthly Midterm Final	• Leave a copy of the supervision report with the sector health workers
5. CEPAC uses financial data in managerial and technical/CS decision-making.	*Indicator deleted due to the difficulty in measuring it*			
6. Improve CEPAC's ability to present information and proposals to donors as follows: c. CEPAC website in place	No Change			

b. At least one proposal submitted and accepted by new donor c. At least one partnership developed with private corporation that provides funding or in-kind assistance.				
Sustainability Indicators				
DIP Indicator	**Revised Indicator**	**Source**	**Frequency**	**Activities Necessary for Results**
1. Percentage of operating costs recovered from user fees/micro enterprise or other resource-generating scheme increased from unknown to 30%.	No Change			

IV. Attachments

A. Baseline information from the DIP

B. Team members and their titles

C. Assessment methodology

D. Persons Interviewed and Contacted

E. Results of the Evaluation

F. Recommended Changes in Project Indicators

Attachment A ---- Baseline Information from the DIP

A. Field Program Summary: **No changes since the DIP was approved**

PVO/Country: Bolivia
Program Duration: September 30, 1999 – September 29, 2003

1. ESTIMATED PROGRAM EFFORT AND USAID FUNDING BY INTERVENTION

Intervention	% of Total Effort (1)	USAID Funds in $ (2)
Immunization	20%	$199,940
General Nutrition	20%	$199,940
Micronutrients (other than Vitamin A)	10%	$99,970
Vitamin A	10%	$99,970
Breastfeeding Promotion	10%	$99,971
Diarrheal Disease Management	15%	$149,956
Pneumonia Case Management	15%	$149,956
Control of Malaria	0	0.00
Maternal and Newborn Care	0	0.00
Child Spacing	0	0.00
STI/HIV/AIDS Prevention	0	0.00
Others (specify)	0	0.00
Total	100%	$999,703

(1) Estimate the percentage of total effort (from USAID and PVO match funding) the program will devote to each intervention to be implemented.
(2) Estimate in US dollars (not in percent) the amount of USAID funding (excluding PVO match funds) that the program will devote to each intervention.

2. **Program Site Population: Children and Women (3)**

Population Age Group	**Number in Age Group**
Infants (0-11 months)	1,927
12-23 Month Old Children	1,616
24-59 Month Old Children	5,780
Total 0-59 Month Olds	9,323
Women (15-49) years	14,917

(3) Estimate the number of people in the age group that the program expects to serve. Do not add annual births. If the program is phasing-in geographic areas over time, then estimate the population to be covered by the end of this funding cycle (after all areas have been phased-in).
(4) Estimate the number of women if the data is available.

- **Estimated number of live births in the Ichilo Province:** 1, 927
- Sources of the population estimates above: Total Population Statistics from Municipal Participatory Development Plans, 1997; Indicators for Determining Population Figures: Bolivian MOH Health Status, 1999.

1. Program Goals and Objectives: **No changes since DIP, but recommended changes as result of the MTE (Attachment F)**

*Note: Y = Yapacaní; SC = San Carlos; BV = Buena Vista

Indicator	Measurable on Quarterly Basis?	How Often	Midterm Target	Final Target
EPI Intervention: **1**. Increase % of children 12- 24 months of age fully immunized from 40% (Y) & 25% (SC/BV) to 85% in all areas.	Yes	Quarterly, Midterm, Final, (KPC)	• 54% Y • 43% SC/BV	85% in all three
2. Increase % of children fully immunized before one year of age (<13 mo.) from 14% (Y) & 12% (SC/BV) to 50% in all areas.	No	Midterm, Final, (KPC)	• 25% Y • 23% SC/BV	50% in all three
3. Increase % of WCBA with at least two TT vaccinations reported on maternal health card from 30% (Y) & 25% (SC/BV) to 60% in all areas.	Yes, but not "on cards."	Quarterly, Midterm, Final, (KPC)	• 39% Y • 36% SC/BV	60% in all three
4. Increase availability of all vaccines at health facilities to 80% (current levels: TB—22%, Polio—42%, DPT--42%, Measles--29%, and TT--42%).	Yes	Quarterly, Midterm, Final, (KPC)	• TB: 39% • Polio: 53% • DPT: 53% • Meas:44% • TT: 53%	80% in each
5. Increase from 66% to 100% the number of facilities that have a community vaccination registry.	Yes	Quarterly, Midterm, Final, (KPC)	• 100% in all three	100% in all three
6. New MOH Vaccine/Cold Chain Coordinator visits each facility monthly and reports checklist data to Ichilo Province partners (IEF/CEPAC, Belgian Technical Cooperation).	Yes	Quarterly, Midterm, Final, (Project Records)	• 100%	100%
Nutrition/VA Micronutrients Intervention **1.** Increase coverage of VA (2 doses) of 12-24 month olds from 3% (KPC) to 85% as verified on health card.	No	Midterm, Final, (KPC)	• 28%	85%
2. Increase coverage of VA to post-partum women (1 mo.) from 0.7%(Y) and 2%(SC/BV) to 50% in both areas as verified on the health card.	Yes, but not for less than 1 month.	Quarterly, Midterm, Final, (KPC)	• 15% Y • 16% SC/BV	50%
3. Increase % of pregnant mothers receiving iron tablets from 15.6%(Y) & 12.7%(SC/BV) to 50% as verified on health card.	No	Midterm, Final, (KPC)	• 26% Y • 24% SC/BV	50%
4. Increase % of children 6-24 months of age who consume vegetables rich in VA from: (a.) at least twice in 24 hours, 43% (Y) and 29% (SC/BV) to 70% (Y) and 60% (SC/BV). (b.) at least five times in 7 day period, 43% (Y) and 48% (SC/BV) to 70%	No	Midterm, Final, (KPC)	(a.) 51% Y, 38% SC/BV (b) 51% Y, 55% SC/BV	(a.) 70% Y, 60% SC/BV (b.) 70% in all three

Indicator	Measurable on Quarterly Basis?	How Often	Midterm Target	Final Target
Breastfeeding Intervention **1.** Increase exclusive breastfeeding from 43% (Y) and 17% SC/BV in children 0-6 months of age, to 70% (Y) and 50% (SC/BV).	No	Midterm, Final, (KPC)	• 51% Y • 27% SC/BV	70% Y, 50% SC/BV
2. Increase % of women continuing to breastfeed at 12-24 months from 40%(Y) and 40%(SC/BV) to 60% in both areas.	No	Midterm, Final, (KPC)	• 46% Y • 46% SC/BV	60% in all three
3. Increase % of children initiating breast-feeding immediately post-partum from 64% (Y) and 45% (SC/BV) to 80% (Y) and 65% (SC/BV).	No	Midterm, Final, (KPC)	• 69% Y • 51% SC/BV	80% Y, 65% SC/BV
Diarrheal Disease Management **1.** Increase % children < 2 yrs. w/diarh. That receive more breastmilk from 24%(Y) & 16% (SC/BV) to 50% (Y) and 40% (SC/BV).	No	Midterm, Final, (KPC)	• 32% Y • 23% SC/BV	50% Y, 40% SC/BV
2. Increase % of children < 2 yrs. W/diarh. that receive more food from 17% (Y) & 19% (SC/BV) to 40% in both areas.	No	Midterm, Final, (KPC)	• 24% Y • 25% SC/BV	40% in all three
3. Increase the % of mothers that give increased fluids from 39% (Y) & 44% (SC/BV) to 80% (both sites).	No	Midterm, Final, (KPC)	• 51% Y • 55% SC/BV	80% in all three
4. Increase use of ORT from 27%(Y) & 17%(SC/BV) to 60%(Y) and 50% (SC/BV).	No	Midterm, Final, (KPC)	• 37% Y • 27% SC/BV	60% Y, 50% SC/BV
5. Increase % of mothers taking child to health facility for prolonged or bloody diarrhea from 56% (Y) 58% (SC/BV) to 80%.	No	Midterm, Final, (KPC)	• 63% Y • 65% SC/BV	80% in all three
6. Increase % of health workers accurately treating diarrhea from 30% (est.) to 60%.	No	Midterm, Final, (HFA)	• 39% in all three	60% in all three
Pneumonia Intervention **1.** Increase the number of RPSs with a pharmacy kit with cotrimoxizole from 15 to 200.	Yes	Quarterly, Midterm, Final, (HFA)	• 71	200
2. Increase % of mothers seeking care from a trained provider when child has signs of pneumonia from 44% (Y) and 47% (SC/BV) to 80%.	No	Midterm Final, (KPC)	• 55% Y • 57% SC/BV	80% in all three
3. Increase % of health workers accurately treating pneumonia from 30% (est.) to 60%.	No	Midterm, Final, (HFA)	• 39%	60% in all three
Cross-Cutting Indicators **1.** Increase the coverage of communities w/RPS from 40% to 80%.	Yes	Quarterly, Midterm, Final, (HFA)	• 52%	80% in all three

Indicator	Measurable on Quarterly Basis?	How Often	Midterm Target	Final Target
2. 100% of CEPAC health and MOH counterparts trained in clinical IMCI.	Yes	Quarterly, Midterm, Final, (HFA)	• 100%	100%
3. 100% of RPSs trained in community-level IMCI.	Yes	Quarterly, Midterm, Final, (HFA)	• 50%	100%
Capacity Building Indicators **1.** Advance CEPAC's abilities as measured by the 35 MSH management categories to the "mature stage" (3 in the "initial" stage, 22 in the "growth" stage).	Yes	Final (Project Records)	• 71% mature • 3 in initial to growth • 11 in growth to mature	• 100% mature • 3 in growth to mature • 11 in growth to mature
2. Improved financial systems in place: a. no cash shortages for monthly payments in one year period and, b. no duplicate entries between field and HQ.	Yes	Quarterly, Midterm, Final, (Project Records)	(a.) 30% (b.) 30%	(a.) 100% (b.) 100%
3. Implement QA system for continuous improvement and monitoring of CS project; at least 3 QA assessments completed by end of project.	Yes	Quarterly, Midterm, Final, (Project Records)	• 30%	100%
4. Increase the average number of visits made by a supervisor (MOH or CEPAC) from 2 per 6 months to 5 per 6 months.	Yes	Quarterly, Midterm, Final, (HFA)	• 100%	100%
5. CEPAC uses financial data in managerial and technical/CS decision-making.	No	Midterm, Final, (HFA)	• 100%	100%
6. Improve CEPAC's ability to present information and proposals to donors as follows: a. CEPAC website in place b. At least one proposal submitted and accepted by new donor At least one partnership developed with private corporation that provides funding or in-kind assistance.	Yes	Quarterly, Midterm, Final, (Project Records)	• 30%	100%
Sustainability Indicators **1.** Percentage of operating costs recovered from user fees/micro enterprise or other resource-generating scheme increased from unknown to 30%.	No	Midterm, Final, (Project Records)	• 30%	100%

3. Program Location: **No changes since the DIP except for number of communities**

The project is being implemented in the entire Province of Ichilo (pop. 62,153), which is comprised of the Municipalities of Yacaní (pop. 31,464), San Carlos (pop. 18,156), and Buena Vista (pop. 11,933). The best estimates for population are from the *Plan Participativo de Desarollo* (Participatory Development Plan or PPD) that each municipality developed in 1997. The population figures were derived using the 1997 PPD figures, factoring in a 1.83% annual growth rate for 1998 and 1999:

Municipio	1997 PPD population plus annual growth through 1999
Yacaní	31,464
San Carlos	18,156
Buena Vista	11,933
Totals	**62,153**

(Source: CIA World Factbook)

Bolivia in general, and Santa Cruz in particular, has seen a large migration to urban centers over the last ten years (we are unsure why the national census did not take this into account). Santa Cruz de la Sierra, the departmental capital, is the fastest growing city in Latin America. The PPD statistics reflects this trend, i.e. the move out of San Carlos and Buena Vista, and the move into the larger urban area of Yacaní. Although Yacaní and San Carlos had a similar number of people 8 years ago, San Carlos' population was (and is) much more dispersed. Yacaní has established itself as the urban center for the area.

There are a total of 210 communities in the Province, with 110 communities in Yacaní, 55 in Buena Vista, and 45 in San Carlos. Please see the attached (Annex VII) for individual population figures for each community. Average community size is 250 people or about 50 families.

Ichilo Province is located in the northeastern region of the Department of Santa Cruz, bordered by the Yacaní River on the east and the Ichilo River and the Department of Cochabamba to the west. The area is considered part of the "*Faja Subandina*" or sub-Andean region that is between the mountains and the low lands. Ninety percent of the population has Quechua (indigenous) origins. The main language now spoken, however is Castellano, with Quechua still used in rural areas. According to the KPC, Quechua is the first language for 10.8% of the population in Yacaní and for 7.5% in San Carlos/Buena Vista. Most of the people of this area are involved in subsistence level agriculture. A large factor in migration to the area of Santa Cruz has been that male head of households are seeking employment after the closure or privatization of mines in highland areas. For this reason, the population in the project area is mixed with highland and lowland peoples. This is already taken into account in the development of interventions and the project will continue to utilize a mixed approach to BCC and other materials that are developed to best communicate to all communities in the area. The proposed community level census will also provide information regarding migration patterns that still exist in the project area as families move to access work and farming opportunities.

The predominant religion in the area is Catholic, but many other religions are represented in the area. Thirty-one percent of women and 23% of men are thought to be illiterate. Sixty percent of the population is rural with 40% living in the urban centers. Communities are organized at the grass-roots level into community groups (sindicatos) and agricultural cooperatives. Child caregivers are almost exclusively mothers, sisters and/or other female extended family members.

The current health system in the project area is facility-based with only limited outreach capabilities. CEPAC utilizes vehicles (Mobile Units) for outreach and emergency transportation of seriously ill patients. One doctor, one nurse, and an outreach worker and a driver generally staff the vehicles and they visit one community per day. Prior to implementation of the CS Project, CEPAC was able to reach 30 communities per month on this schedule, out of 210. MOH select the communities visited and pick those that are generally difficult to access, due to lack of infrastructure, poor quality roads, seasonal factors (monsoon seasons), etc. Other communities are served directly by the MOH, however outreach is not completed as scheduled in a majority of cases due to the limited resources of the MOH.

The CS project has added two vehicles that will add an additional 60 communities per month to the CEPAC schedule. CEPAC also maintains a clinic in Yacaní that primarily serves urban families. As the CS project is implemented, a key goal will be for all health services in the area to be better integrated between the MOH and CEPAC and other partners in the area, which is in-line with the strategic objectives of the MOH and their health partners in Ichilo.

The MOH operates a total of 5 hospitals and 19 health posts in the province. Despite this network of facilities, the KPC reported low coverage rates of the most basic child survival interventions: immunization, vitamin A capsules and health education for diarrhea and nutrition. Outreach is limited due to staffing shortages, lack of functioning equipment, lack of transportation, lack of focus on community based methods, shortage of outreach facilities, and, particularly, lack of medications and vaccinations. Despite these factors, CEPAC and MOH staff remain dedicated to improving the health status of the Ichilo province and are struggling to maintain the current coverage rates. The HFA survey that has been implemented documents these shortcomings and is attached as Annex II.

Summary of Population Served by MOH and CEPAC Health Facilities

Buena Vista	**Population Served**
Roque Aguilera First-Level Hospital	4511
Caranda Second-Level Hospital	1786
Huaytu Medical Post	1972
Villa Diego Medical Post	828
Espejitos Medical Post	808
San Miguel Medical Post	736
Arboleda Medical Post	860
Total Population	**11501**

San Carlos	Population Served
Ichilo Hospital	3685
Buen Retiro Medical Post	2382
Santa Fe Medical Post	5183
San Juan Medical Post	2507
Antofagasta Medical Post	2117
Ayacucho Medical Post	1141
Enconada Medical Post	999
Jochi Medical Post	620
Japanese Second-Level Hospital	936
Total Population	**19570**

Yacaní	Population Served
Yacaní Hospital	6781
CEPAC Medical Center	6781
San Germán Medical Post	2601
El Palmar Medical Post	1374
Puerto Palos Medical Post	1394
Puerto Greter Medical Post	1183
San Rafael Medical Post	1647
Nuevo Horizonte Medical Post	1544
Moiller Condor Medical Post	1385
Total Population	**24690**

Note: The population figures used by the MOH for these projections are lower than those reported by the CS project because of differing data sources. This data is from the National Census (INE, 1992).

2. Program Design: **Only change was the deletion of some studies as part of the baseline assessment**

A partnership of the IEF and CEPAC was proposed for funding in December of 1998. The proposal, which was approved for funding in the spring of 1999, allows for the implementation of high quality and highly sustainable CS program. The partnership of CEPAC and IEF, strategically matches the strengths of a highly technical PVO with over 10 years CS experience, with a community based local NGO that has strong ties and excellent reputation within the country. The project design was based on existing activities carried out by CEPAC which were developed with community involvement. The goal of the project is to improve the sustainable delivery of child survival interventions. The partnership will achieve this goal by: 1) improving coverage and quality of individual interventions and 2) improving the managerial capacity of CEPAC and IEF. The project has clearly defined intervention, quality, managerial capacity, and sustainability indicators that will monitor the progress of the CS project.

1) Improving Coverage and Quality of Interventions
The project more than doubles the beneficiary population currently served by CEPAC from 31,464 in Yacaní to 62,153 in the entire Province of Ichilo (including Santa Cruz

and Buena Vista). While CEPAC worked throughout Yacaní, in fact they only served a small percentage (30%) of the total communities and the urban center of Yacaní through their static clinic. Therefore, doubling the population served is a conservative estimate of the increases that will be realized by the project.

In order to achieve this greater population coverage, CEPAC understands the need to incorporate more broad-based intervention strategies (such as increasing the use of community education and campaign style strategies) into their overall programming. In addition, greater integration with the MOH and other local partners will assist the IEF/CEPAC team to achieve the CS goals. CEPAC and MOH began the process of better integrating services prior to submission of the original DIP, in March of 2000.

Since the proposal, no major changes have been made to the interventions. The project will address, EPI, Nutrition (including micronutrients), Breastfeeding, CDD and PCM. Pneumonia is the leading cause of death in under 5 year olds. Malnutrition is responsible for over half of deaths, is an underlying cause of all the major causes of deaths, and contributes to maternal deaths. Diarrhea is a leading cause of death as well, which can be treated at home with ORS or home available fluids in most cases. Data from CEPAC shows 80% of diarrhea (reporting to the mobile clinic) is due to parasitosis, however, the causes have not been studied on a community level in the project area. Deworming in addition to EPI/VA campaigns will continue as programmed in the proposal.

Interventions not included are: 1.)Control of Malaria, 2.) Maternal and Newborn Care, 3.) Child Spacing, and STI/HIV/AIDS Prevention. These interventions were not selected primarily because it was felt that the project would be better served by concentrating on a small number of key interventions that directly relate to the leading causes of childhood mortality. By concentrating on these key interventions, the project will have the opportunity in the four year program cycle to lay the ground work for increasing coverage and quality for these interventions. Once this is successfully implemented with a few interventions, IEF and CEPAC can expand on this success and later add these other interventions which are affecting childhood mortality. It should be noted that CEPAC continues to work with all of these interventions not specifically chosen for CS project through their clinical work in the province.

Women of child bearing age and children to 60 months of age encompass the target groups for the CS project interventions. They will be accessed and incorporated into the program in a variety of ways. Of primary importance will be the community-based census that will allow CEPAC and the MOH to accurately assess the size of their target populations and understand where women and children are located. In addition, expansion of the RPS system will also be important to identifying and locating the target populations. RPS keep data on all families in their communities and report this information to both the MOH and CEPAC.

The following is a list of the target populations by intervention:

Immunizations	• 0-24 month olds • women of child bearing age
Nutrition (micronutrients)	• 0-60 month olds • women of child bearing age
Breastfeeding Promotion	• women of child bearing age
Control of Diarrheal Disease	• 0-24 month olds • women of child bearing age
Pneumonia Case Management	• 0-24 month olds • women of child bearing age

2) Improving the Managerial Capacity of CEPAC and IEF
In 1997, MSH was contracted by PROCOSI to conduct a baseline evaluation of its member NGOs. This evaluation was completed by CEPAC and is used as a baseline from which to evaluate CEPAC's growth.

The evaluation assessed CEPAC's level of performance in each of 6 management areas (mission and plans, leadership, organizational structure and lines of communication, financial management, human resource management and community participation). In summary, the report found CEPAC to be strong in the areas of community participation, leadership and decentralization of decision making, creation of an organizational mission and corresponding strategies, and in overall employee satisfaction. Areas of weakness included 1) documentation and dissemination of lessons learned, administrative and field operations, and personnel policies, 2) financial reporting that meets the needs of program management, 3) financial planning that is aligned with project goals and workplans, and 4) formalization and improvements of supervision and training systems. Of the 35 total management indicators examined, 3 were identified as being in an "initial" stage, 22 were recognized as in a "growth" stage, and 10 were identified as "mature." Please refer to Annex XIV for a list and a pictorial design of the 35 management indicators assessed by MSH.

The overall package of direct support by IEF and technical assistance will produce improvements in all areas of weakness as assessed by completing the MSH assessment prior to the mid-term and final stages of the project. Specifically, by midterm, 71 percent of the indicators will be in the "mature stage" (the 3 indicators at present in the initial stage will advance to the growth stage, and 11 of the 22 in the growth stage will evolve to the mature stage). By the final evaluation, 100 percent of the MSH indicators will be in the mature stage (the 3 indicators in the growth stage will evolve to the mature stage, and the remaining 11 in the growth stage will advance to the mature stage).

The project is planning an intensive baseline assessment period which will last between one year and 18 months. This period was programmed in the proposal and has not changed substantially. At this time, the KPC, HFA and cost analysis have been completed. Focus groups, Rapid Rural Appraisals (RRA's), customer satisfaction (including ability to pay), and the nutritional assessment, take place over the course of the next 6 months of the project. All information collected during the baseline assessment period will be shared within the province and with PROCOSI NGOs and should be of use to a variety of organizations. Of particular importance are the cost analysis which examined the cost effectiveness of the CEPAC mobile teams, a common strategy throughout Bolivia and the nutritional assessment which will provide important biochemical and growth monitoring data for the entire province. The USAID Mission in La Paz supported the use of both of these assessments because of their importance to the health of Bolivians.

3. Partnerships: **No major changes since approval of the DIP**

In-country Partnerships

The IEF has carefully read and adheres to the strategic objectives of USAID's Office of PVC and to the objectives of the local Bolivia Mission. The IEF further enhances goals of the USAID's VITA initiative and brings over a decade of experience and expertise in vitamin A to the proposed program and to the country of Bolivia.

The IEF met with the USAID Mission in Bolivia on several occasions throughout development of the proposal and the DIP. The Mission provided important guidance for the proposal, supporting formation of the IEF/CEPAC partnership and supporting submission of the proposal to USAID/Washington. The proposal meets the Mission's overall health objectives by ensuring the improvement of child survival services through CEPAC and by developing the capacity of CEPAC as a local NGO.

The proposed program also satisfies the objectives of PVC though : 1.) Increased capacity of IEF to manage CS programs (by expanding its operations to South America, expanding its expertise in sustainability from eye care to primary health care, and by allowing IEF to work with a new local NGO); 2.) Improved operational and technical capacity of IEF and CEPAC to carry out CS projects (especially through the use of Quality Assurance (QA) methodologies); 3.) Strengthened partnership between USAID and IEF by maintaining links to the Office of PVC; 4.) Development and strengthening of a partnership between IEF (PVO) and CEPAC (local NGO); 5.) Improved mobilization of resources by both IEF and CEPAC through their ability to secure local and non-USAID funding and USAID contractor resources to support core CS activities; and 6.) Increased US and Bolivian public awareness of CS programs through IEF and CEPAC public relations materials.

In the project area, CEPAC has developed relationships over years of work in Ichilo that include strong partnerships with the MOH, fellow PROCOSI NGOs, and with the Belgian Technical Cooperative. The latter has recently agreed to provide additional funds to the CS project to improve cold chain management

Strengthening the Local Partners

The IEF is working to strengthen its local NGO partner in Bolivia, CEPAC. The overall objective of the partnership is to provide CEPAC with the means to improve its managerial capacity, and thus improve the coverage, quality and sustainability of the health services it provides. The IEF recognizes CEPAC's strengths and appreciates the fact that CEPAC has evolved as a grass-roots effort in the Region of Santa Cruz. The IEF/CEPAC partnership is one of equality and strong collaboration. The purpose of the partnership is to identify capacity area needs required to implement high quality CS programming, as well as increase CEPAC's organizational and financial sustainability. IEF's role is to facilitate the introduction of new concepts and options for improved health programming, and to manage CEPAC's transition to a higher performing organization. Among other things, the process will entail the identification, definition, and modification of capacity building and sustainability objectives and goals. For more details on the relationship between IEF and CEPAC, please refer to the partnership agreement in Annex III.

While working directly with CEPAC, IEF also works indirectly with the Ichilo District MOH to improve technical and managerial capacity. CEPAC and the MOH collaborate in a number of ways. This collaboration is manifested in joint workshops, participation of MOH auxiliary nurses in CEPAC's Mobile Health Teams, and coordination between MOH Area Supervisors and CEPAC Area Coordinators. Furthermore, the IEF Project Advisor maintains close contact with the MOH District Director and staff to ensure they are fully aware of project goals and objectives, and that they have an opportunity for programmatic input. In an effort to strengthen communication between CEPAC, the MOH, and IEF, monthly coordination meetings were established in September of 2000. Participants involved in the meetings include CEPAC's Executive Director and Co-directors of Health, the MOH's District Director and Supervisor, IEF's Project Advisor, and the Belgian Technical Cooperation's Project Advisor. The agenda for each meeting centers on one issue (e.g. child survival, obstetric risks, etc.), and the participants produce a report focused on recent developments related to that topic in Ichilo Province. In essence, the monthly meetings allow for reflection on activities completed as well as planning for future activities.

Further steps will be taken to strengthen CEPAC's relationship with the MOH. Anecdotal reports from CEPAC and other NGOs indicate that the MOH's capacity to implement certain interventions is very low. One example, is cold chain management. MOH personnel at the Regional level (Santa Cruz) are indirectly involved in the improvement of the cold chain, and the flow of vaccinations from the Regional level to MOH health facilities. A baseline survey of the MOH's technical and managerial capacity has not been conducted. Nevertheless, this project will take steps to improve cold chain maintenance and vaccination flow. It should be noted that the Belgian Technical Cooperation is concurrently implementing a project to help the MOH improve its health system in Sara Province (a neighboring province), as well as Ichilo Province. The IEF Project Advisor and CEPAC are working closely with the Belgian Advisor, Dr. Patrick Van Dessel, to coordinate activities in the two Provinces. Dr. Van Dessel has agreed to provide funds for the purchase of cold chain equipment. This additional funding

will allow for the completion of the cold chain and training of an MOH Vaccination/Cold Chain Coordinator. IEF and CEPAC have also agreed to allow three supervisors from the Sara Department participate in the QA workshop lead by Tom Davis in December of 2000 (See Annex XXII). Overall, it is hoped that the MOH will eventually commit on an intervention by intervention basis as the CS project progresses.

Aside from monthly coordination meetings and establishing an efficient cold chain, efforts will be made to improve CEPAC's managerial weaknesses as identified by Management Sciences for Health (MSH). In 1997, PROCOSI contracted MSH, based in Boston, Massachusetts, to assess the managerial capacity of its member organizations. The assessment reviewed six management areas within CEPAC, namely: mission and plans, leadership, organizational structure and lines of communication, financial management, human resource management, and community participation. The strengths of the organization, as reported by MSH, were: 1.) the ability to implement interventions; 2.) strong linkages with the MOH and local leaders; 3.) the presence of a well developed mission and long-term strategic plan; and 4.) the ability to meet community and staff needs in the design and implementation of programs. Of the 35 total management indicators examined, 3 were identified as being in an "initial" stage, 22 were recognized as in a "growth" stage, and 10 were identified as "mature." Please refer to Annex XIV for a list and a pictorial design of the 35 management indicators assessed by MSH.

In preparation for the original DIP, IEF and CEPAC held a one-day workshop to review the MSH report, the capacity building objectives submitted in the proposal, and to brain-storm about strategies to improve CEPAC's capacity. As a result of this meeting, IEF and CEPAC agreed to work together to transform CEPAC's management indicators from the "growth stage" to the "mature stage", and selected indicators to monitor the transition. They also agreed to depend on local consultants, Tom Davis, MPH, (for QA), and the IEF Project Advisor to strengthen weak areas. Relying on said individuals will be more cost-effective than re-hiring the MSH group.

Weaknesses of CEPAC's management capacity, as reported in the MSH assessment, along with plans for improvements, are detailed below:

1) *Documentation and dissemination of lessons learned, administrative and field operations, and personnel policies*. The IEF Project Advisor will work directly to improve this area with CEPAC. IEF will review all managerial documentation with CEPAC and work to upgrade and formalize materials as needed.

2) *Financial reporting/planning to meet the needs of project goals, workplans, and program management.* While CEPAC's donor reporting system is adequate, based on a new computerized accounting system, information useful for making management decisions is not always readily available. Furthermore, personnel do not have solid decision-making skills using financial documents or strong skills in developing financial tools (such as working budgets). The development of a long-term sustainability plan (with the assistance of IEF) and the completion of a cost analysis (July 2000, James Clement, MBA) will be key elements in improving CEPAC's procedures for financial

reporting. Included in this upgrade will be an improvement of CEPAC's ability to make financial presentations to government personnel and departments (as specifically requested by CEPAC). The IEF Director of Finance and Administration will visit the project to work with CEPAC to improve overall financial reporting.

3) *Formalizing and improving supervision and training systems*. The need to establish a system that facilitates employee evaluation is a key concern for CEPAC and IEF. In addition, CEPAC would like to institute a system to reward outstanding employees and identify weak individuals for targeted improvement. IEF will contract Tom Davis, MPH,, an expert in quality assurance (QA), to review all supervisory systems. Special attention will be given to consistency and transparency as identified by the report. Checklists, formal feedback and a regular supervisory schedule will be implemented to monitor steps taken to improve the system.

CEPAC and IEF have developed a training plan to improve CEPAC's technical and managerial capacity (see Annex XVI). Improving managerial and general organizational capacity has been identified as a major priority. Attention will thus be paid to improving English proficiency, as well as boosting computer skills, such as the use of Microsoft Office, Microsoft Excel, and EPI-Info. Other areas targeted for training include: proposal writing, resource development, public relations development, web page development, and executive board development. Depending on the availability of resources, IEF would like to facilitate greater in-country training for CEPAC staff, as well as increase the interaction that CEPAC staff have with other Bolivian NGOs/PVOs. Visits to other project sites could coincide with PROCOSI meetings in order to reduce costs. Visiting projects outside of Bolivia would also be extremely beneficial for key CEPAC staff, but would depend on resource availability. Finally, IEF intends to introduce the steps needed to improve CEPAC's operational and financial sustainability. The first step in this process involves generating awareness about sustainability. CEPAC must define what it is they want to sustain and how they plan to move from a traditional, donor-driven organization, to a self-sufficient, income-generating organization. The second step will be to establish a solid business plan and improve cost management. Taking measures to improve productivity, lower costs, and diversify sources of funding will also be necessary to improve CEPAC's financial sustainability. The third step will involve developing CEPAC's capacity to generate self-earned income. The more earnings that CEPAC can generate, the more flexibility, independence, and control they will have over resources, leading to more long-term sustainability

6. Health Information System: **Major changes in this section were documented in the MTE report structure of Health Reporting System**

At present, CEPAC uses a data collection system that corresponds to national MOH protocols. The project will support this system, focusing on strengthening CEPAC's capacity to collect data. A joint effort between CEPAC and IEF will reduce some of the burdens associated with paper-based data collection by focusing on ways to maximize computer usage.

CEPAC designed a data system to fulfill multiple report requirements, namely those made by the Bolivian National Health Information System, (SNIS- Sistema Nacional de

Información de Salud), the four levels of health offices that fall under the Ministry of Health (namely, sector, area, district, and regional levels), and international donors. The structure of the health reporting system in Ichilo Province is as follows:

Process, Monitoring, and Evaluation of Data Collection

At the community level, there are three principal actors in the data collection process. Community Health Volunteers (RPSs) are the first link. The RPSs must fill out a monthly report and turn it in by the 10th of each month for the previous month's work to a sector or area level CEPAC representative, or the area RPS director. The forms are then given to the CEPAC Area Coordinator to combine and create statistics for the Province. In the report, the RPSs must describe the number of children (younger than 5 years of age, and older than five years of age) that are treated with diarrhea, acute respiratory infections (or symptoms there of), tuberculosis, and infectious diseases. Additionally, they must record the following: the number of house visits made; group educational sessions conducted (noting the number of participants); births attended (noting the weight and height of each newborn); the number of deaths among children less than 5 years of age; the number of deaths in children greater than 5 years of age (noting the sex, child's age, and cause of death for both); and the number of maternal deaths (noting age and cause of death). The forms are simple in design and include illustrations to guide those RPSs who are illiterate.

CEPAC Mobile Health Teams make up the second link in the data collection process. Comprised of a chauffeur, three trained CEPAC health workers, the CEPAC Area Coordinator, and the MOH Area Supervisor (when he/she is available), the Mobile Health Teams are required to complete hand-written reports after each community visit. At the end of the month, the team compiles their data, the RPS data, and the MOH data. The CEPAC Area Coordinator enters the data into a form (a standardized spreadsheet) on her computer. CEPAC designed the form in such a way as to make report writing for each health level (sector, area, district, and regional), as well as international donors, less time-consuming. For example, the form has a column that automatically tabulates the percentage of time that the mobile health teams spend on each activity, a USAID-required statistic. The three CEPAC Area Coordinators give the handwritten form and a disk with the information on it to Dr. Morales. Dr. Morales then combines data from the three areas on her computer to generate overall statistics for Ichilo Province.

In addition to health statistics, the CEPAC Area Coordinator also collects management data for reporting purposes. A separate form is used to record a tally of medical supplies and equipment, as well as monthly activities, such as the number of staff trained, educational sessions conducted, etc. The CEPAC Area Coordinator is responsible for tracking this data on a monthly basis and giving it to district level authorities who combine it with MOH data and compile statistics for the Province.

The third link in the data collection process is comprised of the MOH health workers. Each month, MOH health workers report the data collected at MOH health posts and facilities to the MOH Area Supervisor. It is important to note that both MOH personnel and CEPAC personnel use the same SNIS-formatted records. The MOH Area Supervisor

then works with the CEPAC Area Coordinator to tally the CEPAC and MOH data for their respective area.

Monitoring and Evaluating Health Worker Performance

Each area (San Carlos, Buena Vista, and Yacaní) has an RPS Board, made up of an RPS President, Vice President, and Secretary. The purpose of the Board is to represent the RPSs as well as monitor their performance. The Board will meet with a worker who does not consistently hand in reports, for example, to get an explanation of his/her problem in order to devise a solution. With the help of the CEPAC Area Coordinator and the MOH Area Supervisor, the Board also monitors the performance of each RPS by filling out an evaluation form entitled "RPS Monitoring Instrument" ("Instrumento de Monitoreo de los RPS"). Weaknesses are identified and addressed in monthly RPS training sessions sponsored by the Mobile Health Teams. The RPS Board tracks progress made by the RPSs, as well as chronic problems and/or challenges faced by RPSs. The CEPAC Co-Directors of Health, Dr. Mabel Morales, and Dr. Osvaldo Chavez, monitor and evaluate the performance of the RPS Board members.

The three trained CEPAC health workers in each Mobile Health Team maintain their skills through periodic updates with the CEPAC Area Coordinator (each of whom is a registered nurse). The MOH Area Supervisor also works closely with the CEPAC Area Coordinator to learn specific skills and intervention protocols. The CEPAC Area Coordinators are required to take courses to upgrade their skills in Microsoft Excel, Word, and other useful computer programs. Dr. Morales and Dr. Chavez monitor the CEPAC Area Coordinator in each area, ensuring that they receive the most up-to-date information received from IEF Headquarters. This information includes updated materials and information on the latest protocols and recommendations provided by child survival experts.

The routine monitoring and evaluation of RPSs and CEPAC Area Coordinators performance complies with the first IMCI evaluation protocol, namely to determine the impact of training in the practices of health personnel. Additionally, standard periodic checks on the availability of medicines (i.e. number of RPS with medicine kits, Vaccine/Cold Chain Coordinator's monitoring activities, etc.) complies with the second IMCI evaluation protocol: to determine the provision of medicine and equipment for the integrated management of childhood illness in children less than 5 years of age. Training health workers to evaluate, classify, and treat children less than 5 years of age (e.g. via RPS training), to optimize advice given to a child's caretaker (e.g. via health festivals, Mobile Health Team visits, RPS home visits, etc.), and to help caretakers recognize the signs that signal a need to seek professional help (e.g. via health festivals, Mobile Health Team visits, RPS home visits, etc.) also coincide with IMCI evaluation protocols. Similar to the overall IMCI philosophy, CEPAC aims to decrease infant and childhood death by implementing CS interventions that have strong curative and preventative components.

Data Dissemination and Analysis

Every month a news bulletin containing local results is disseminated to local communities in each area. This information is analyzed by the Community Information

Analysis Committee (Comité de Análisis de Información Comunitaria, CAIC), made up of the local RPSs and the Mobile Health Team. The analysis takes place during a community health festival as the majority of community residents, if not all, are guaranteed to be in attendance. The monthly results are displayed in graphs on a giant chart, indicating specific indicators with drawings for illiterate community members. CAIC members systematically go through each indicator and ask, for example, how many mothers had children who suffered from diarrhea in the preceding month. The number of affirmative answers is compared with the figure initially reported from the combined RPS, CEPAC Mobile Health Team, and MOH data. If the number is higher than the initial figure, members of the CAIC solicit explanations from community members as to why they did not visit the Mobile Health Team, call upon an RPS, or visit a CEPAC or MOH health post (e.g. "We live too far," "The MOH health worker is never at the health post," etc.). The new information is recorded during the discussion. CAIC members also facilitate a discussion among community members to identify why they believe they are ill (e.g. "We drink polluted water"). The purpose of this is to encourage communities to analyze their problems based on local data in order to develop a sustainable action plan to improve their health. Throughout the year, the information that is collected is prominently displayed on community data boards in order that trends can be effectively examined and proactive measures identified.

With the new statistics collected from the CAIC analysis, the Mobile Health Team revises the monthly report. They also summarize the information learned from the community, including the demands, needs, and challenges identified by the community. These two components are used to create a document that is turned over to the Community Information Analysis team (CAI) at the area level. The Mobile Health Team and the MOH Area Supervisor participate in the analysis of the information at the area level in order to plan more effective interventions. Dr. Morales, Dr. Chavez, and Mr. Widen Abastoflor of CEPAC also analyze these reports in order to monitor the progress of CEPAC's efforts in the Province. The information is then handed over to the CAI team at the district level. The function of the district CAI is to compile information from the three areas. At this level, not much data analysis actually takes place although it is hoped that this will change in the future.

Dr. Morales of CEPAC assists in generating the monthly reports for the four health levels, as well as the statistical report for the SNIS (National Health Information System). She also produces reports for international donors on a trimester basis. Dr. Morales, along with Dr. Chavez and Mr. Abastoflor, present annual reports to CEPAC's board of directors, as well as monthly reports to MOH personnel at the district level.

CEPAC/IEF Monitoring and Evaluation of Project Progress

The Project Advisor, Kirk Leach, will attend monthly meetings held by Dr. Morales and CEPAC Area Coordinators to write CEPAC reports. Mr. Leach is responsible for relaying CEPAC's reports to IEF Headquarters on a quarterly basis. Mr. Leach will use a form that adapts CEPAC's monthly reports into quarterly summaries (see Annex XVIII). These reports monitor project indicators, providing descriptive text on progress achieved toward attaining identified targets. Numerical statistics are provided for indicators that can be monitored quantitatively, that is those indicators for which the MOH collects

information on a quarterly basis. Those indicators that can not be monitored quarterly are measured at mid-term and final. Refer to the table below for a description of which indicators will be monitored quarterly, and which will be assessed at the midterm and final evaluations (via the KPC, HFA, or Project Records).

Aside from the quarterly reports, project staff will routinely perform lot quality assessments in Yacaní, San Carlos, and Buena Vista. Community members will be chosen at random and interviewed on a regular basis to assess the health information they have learned from RPSs, the Mobile Health teams, and/or health workers at health posts or centers. The qualitative information will be evaluated to ensure that appropriate and accurate health messages are reaching local communities.

Data Collection Technical Assistance

Although the focus is not to make sweeping systematic changes, the project will work to upgrade the data collection system, and strengthen management decision-making based on programmatic input from communities. Through PROCOSI, CEPAC is receiving technical assistance to review and improve their information systems. For example, a more effective, efficient computer system will be introduced that will hopefully reduce the paper-based reporting. Computerization will allow for data to be automatically compiled, improving the efficiency and quality of data collection. The effort to further improve the data collection system will be a cooperative effort between CEPAC and IEF.

In November of 1999, the IEF headquarters team met with MSH consultants conducting the review of the PROCOSI NGOs monitoring and evaluation systems. The outcome of the survey indicated problems with the quality of data based on unreliable data collection methods (lack of precise definitions, consistency, etc.). The problems identified were consistent with observations made by IEF staff during the development of the proposal and DIP. The Monitoring and Evaluation component of the CS project will therefore focus on improving the quality of record keeping through quality assessment exercises by IEF staff. These exercises will focus on the health information system to monitor effectiveness at the field level, making use of checklists, focus groups, exit interviews, and monitoring supervisory visits and customer satisfaction.

Attachment B
Team Members and their Titles

Kirk Leach, Project Advisor, IEF/Bolivia (leaving)
Teresa Mendoza, Project Advisor, IEF/Bolivia (new)
Gwen O'Donnell, CS Backstopper, IEF/HQ
Rosemary Samacuri, Area Supervisor Yapacaní, CEPAC
Delia Llanos, Area Supervisor San Carlos, CEPAC
Femida Gutierrez, Area Supervisor Buena Vista, CEPAC
Susana Arce, San Carlos Area Health Supervisor, MOH
Sandra Fernandez, District Health Supervisor, MOH
Paulina Flores, Buena Vista Area Health Supervisor, MOH
Renee Charleston External Consultant
Abraham Soliz , RAN San Carlos

Resource People:

Widen Abastoflor, Executive Director, CEPAC
Dr. Oswaldo Chavez, Co-Director of Health, CEPAC
Dr. José Pimentel, Director of Buena Vista Hospital, MOH
Dr. Abel Monasterio, Director of Ichilo District, MOH
Teofila Escobar, Representative of RPS Federation
Dr. Armando Murillo, Director of San Carlos Hospital, MOH
Dr. Eduardo Pérez, Director of Yapacaní Hospital, MOH
Elsa Diaz, Yapacani Area Supervisor, MOH
Dr. Gladis Sanchez, Yapacaní Hospital, MOH
Dr. Javier Meriles, District Doctor, MOH
Dr. Patrick Van Dessel, Director, BTC
Alex Rodriguez, BTC
Dr. Walter Agreda, Director of Health Programs, PROCOSI
Dr. Fernando Murillo, Bolivia Country Representative, IEF
Dr. Marcelino Lopez, Save the Children
Ruth Pérez, Save the Children
Omar Miranda, Project Administrator,CEPAC
Miriam Milluni, Nutritionist, CEPAC
Andrés Coro, MU Team Member
Nancy Gonzales, MU Team Member
Eva Muñoz, MU Team Member
Aidé Menezes, MU Team Member
Guadalia Alanés, MU Team Member
Elizabeth Pinto, MU Team Member

Attachment C

Assessment Methodology

PARTICIPATORY EVALUATION PROCESS

I. OBJECTIVES OF THE EVALUATION

The purpose of the Midterm Evaluation was to;

1. Assess progress in implementing the DIP;
2. Assess progress towards achievement of objectives or yearly benchmarks;
3. Assess if interventions are sufficient to reach desired outcomes,
4. Identify barriers to achievement of objectives, and
5. To provide recommended actions to guide the program staff through the last half of the program.

The evaluation was carried out in accordance with USAID/BHR/PVC MTE guidelines and the evaluation report follows the suggested format.

The objectives of the evaluation are:

- Identify the principal achievements of the project, focusing on which strategies were most effective and the barriers which were overcome during the implementation.
- Develop recommendations for improving project strategies in order to achieve greater impact during the next two years.
- Develop recommendations on how to obtain sustainability in all aspects of the project.

II. COMPOSITION OF EVALUATION TEAM

The team was composed of representatives from CEPAC, IEF in Bolivia, IEF Headquarters, MOH, and an external evaluator who served as team leader. Additional resource people who participated in the Planning Workshop and Analysis Workshop included representatives from BTC, Save the Children, Federation of RPSs, PROCOSI, as well as additional CEPAC and MOH staff.

The team leader was responsible for coordinating all evaluation activities, supervision of the team, meeting all specified objectives, collaborating with IEF and MOH, and submitting a draft and a final report according to the defined timeline. Three team coordinators functioned as the coordinators of

the teams for field data collection, including overall coordination, planning and logistical support of the team. The evaluation team was divided into three teams for field work, which completed the following activities.

	Team Buena Vista	Team San Carlos	Team Yapacaní
	Fémida-Coordinator Paulina Sandra Gwen	Delia-Coordinator Abraham Teresa Renee	Rosemary-Coordinator Alejandro Susana
Saturday 6	Villa Amboro Growth Monitoring PS Huaytu	Villa Imperial Festival Inventory Growth Monitoring PS Santa Fe	Palmar Norte Inventory Growth Monitoring PS Puerto Grether
Monday 8	Cancelled due to car trouble	Enconada Education Session Vitamin A	Callavito Education Session Vitamin A PS Condor
Tuesday 9	Villa Diego Vaccinations PS Espejitos	2 de Agosto Vaccinations PS Buen Retiro	Campo Víbora Vaccinations

Completed Activities-
8 Observations of Mobile Unit Team
Use of quality checklists
13 Interviews with RPS
8 Interviews with women's groups
7 Interviews with men's groups
8 Interviews with leaders/health committee
7 Interviews with teachers
6 Visits/Interview in Health Posts

III. METHODOLOGY

Using both a participatory approach and participatory methodologies, a multi-disciplinary term of key project stakeholders examined the implementation of CS activities using a variety of qualitative methodologies.

Field visits allowed project participants and community volunteers to provide their inputs and suggestions to the evaluation process. The evaluation focused on the process of activities including; capacity building, planning, HIS, community participation, coordination with MOH, and sustainability. The methodologies used to obtain information for the evaluation included:

Document Review
Key Informant Interviews
Group Interviews
Observations, using quality checklists

IV. EVALUATION PLAN

The evaluation was divided into four phases:

Phase I Planning

- Preplanning (Formation of team, logistics, document review, selection of communities)
- 2 day Planning Workshop (Content, methodologies, design of instruments)

Phase II Data Collection

- Field Work visits
- Other interviews
- Document review

Phase III Data Analysis

- Summarize data
- Analysis of data by the evaluation team (2 day Analysis Workshop)

Phase IV Presentation

- Written report
- Formal presentation and action plan will be held after report is finalized

The evaluation team was divided into 3 small groups to collect information from the field. Each team consisted of 3-4 people. The teams were in the field for 3 days and visited 8 communities previously selected for visits. One team had car trouble and was unable to visit one of the planned communities. Two health posts were visited within each area.

A two-day Planning Workshop was held for all team members and other invited stakeholders to define the objectives of the evaluation, the content of the evaluation, receive information on progress of the project to date, and to develop instruments for obtaining information during field visits.

A two-day Analysis Workshop was held for all team members and other resource people to review the results of the field work and other information collected during the evaluation, and to formulate recommendations for improving the quality of project implementation during the second half of the project.

V. EVALUATION SCHEDULE

October 2001

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1 Evaluation Planning	2 Interviews	3 Planning Workshop	4 Planning Workshop	5 Preparation of evaluation tools	6 Community Visits	7 Document Review
8 Community Visits	9 Community Visits	10 Preparation of information	11 Analysis Workshop	12 Analysis Workshop	13 Wrap-up and de-briefing	14 Travel

Planning Workshop

3 de Octubre

9:00-9:30	Bienvenida	Ing Abastaflor
	Introducción de participantes	Kirk Leach
9:30-10:30	Evaluación Participativa	Renee
10:30-11:00	Refrigerio	
11:00-1:00	Presentación de resultados CEPAC/IEF/DOH	Team
1:00-2:00	Almuerzo	
2:00-6:00	Continuación de la Presentación	

4 de Octubre

9:00-10:30	Trabajo de Grupos-Situación Ideal	
10:30-11:30	Plenaria	
11:30-1:30	Trabajo de Grupos: Formulación de Preguntas	
1:30-2:30	Almuerzo	
2:30-3:30	Como hacer Entrevistas	Teresa
3:30-4:30	Formación de Equipos	Coordinadores
4:30-5:00	Próximos Pasos	Renee

ANALYSIS WORKSHOP

11 de Octubre, Jueves

8:30-9:00	Experiencias en el campo
9:00-9:30	Revisión de información colectada
9:30-11:00	Trabajo de Grupos-Análisis por Intervención - Situación Actual
11:00-11:30	Refrigerio
11:30-1:30	Trabajo de Grupos- Análisis por Intervención- Recomendaciones
1:30-2:30	Almuerzo
2:30-4:30	Plenaria
4:30-5:00	Refrigerio
5:00-5:30	Cinco Estrellas

12 de Octubre, Viernes

9:30-12:00	Trabajo de Grupos-Temas Transversales
12:00-1:30	Plenaria (dos grupos)
1:30-2:30	Almuerzo
2:30-3:00	Plenaria (un grupo)
3:00-4:00	Priorización de Acciones
4:00-4:30	Refrigerio
4:30-5:00	Recomendaciones Adicionales
5:00-5:30	Evaluación del Proceso
	Clausura

Evaluation of the Process

Seventeen team members and resource persons completed an evaluation of the MTE process, during the Analysis Workshop. The results from the questionnaires were:

- 11/17 (65%) of participants felt that the process used was very effective, and 6/17 (35)% that it was effective.
- Most participants felt that nothing was lacking from the process but two people mentioned the lack of more active exercises to break up the monotony of the work.
- What people liked most about the evaluation were the visits to the communities, the involvement of CEPAC, IEF and MOH personnel throughout the process, the methodology used, and the high level of participation. Other aspects people found positive were the analysis phase, developing their own recommendations and working in teams.
- Two people said what they liked least was the discordant discussions and attitudes which presented occasionally in the workshop. Other observations were the lack of punctuality of the participants and that not enough communities were visited and the teams did not rotate to each of the three areas.
- 14/17 (82%) felt the content of the evaluation was very adequate for developing strategies for guiding the project in the future, 3/17 (18%) said the content was adequate.
- Suggestions for improving the process in the future were: involvement of the CEPAC and MOH directors in the entire process, involvement of municipal authorities, RPS and community leaders. Another suggestion was to have a Quechua speaker on each team.

DOCUMENTS REVIEWED DURING THE MTE

Capacity Building for Quality Child Survival Interventions: the CEPAC/IEF PROPOSAL, CS XIII Proposal, , IEF, December 1998.

Capacity Building for Quality Child Survival Interventions: the CEPAC/IEF PROPOSAL, Detailed Implementation Plan & First-Year Report, IEF and CEPAC, November 2000.

Diseño Metodologico para el Taller sobre la Negociacion para Cambios de Conducta en Lactancia Materna y Alimentación Complementaria, MOH, CEPAC, Linkages, PROCOSI.

Desarrollo de Capacidades para Intervenciones de Calidad para la Supervivencia Infantil: Propuesta CEPAC & IEF, Detailed Implementation Plan & First-Year Report Spanish translation, IEF and CEPAC, November 2000 (completed 6/01).

CEPAC Strategic Plan (FY 2001-2006), CEPAC, Santa Cruz, Bolivia.

Guia de Contenidos por el taller: Mejoramientos Continua de Calidad para los Proyectos de Sobrevivencia Infantil #1, CEPAC y IEF/Bolivia, 12/00

Instrumento Pedadgógico para el Análisis de Información de la Salud Comunitaria, DOH Ichilo y Sara, BTC, 9/01.

International Eye Foundation, 1999 Annual Report, IEF.

Informe de Taller de Actualizacion AIEPI, DHO/CEPAC/IEF, 8/01.

Leach, K., *Project Report for Bolivia CS Project*, 8/01

Memoria Taller de Capacitacion en TB para RPS Area San Carlos, CEPAC, 9/00.

O'Donnell, *Nutritional and Health Behaviors Survey*, Ichilo Province, Sanata Cruz, Bolivia, IEF, 6/01.

Primer Congreso Nacional de Responsables Populares de Salud, Municipalities of San Calros, Buena Vista & Yapacaní, CEPAC, DHO Ichilo, British Embassy, German Social Cooperation, Yapacaní Bolivia, 3/00.

Propuesta de Metodologia de Supervision Capacitante para el Distrito de Salud Ichilo, Universidad NUR 8/01.

Segundo Taller sobre Mejoramiento Continuo de la Calidad, CEPAC & IEF, Santa Cruz, Bolivia, 7/01.

ATTACHMENT D
Persons Interviewed and Contacted

Kirk Leach, Project Advisor, IEF/Bolivia
Dr. Fernando Murillo, Country Representative, IEF/Bolivia
Gwen O'Donnell, CS Backstopper, IEF/HQ
John Barrows, Program Director, IEF/HQ
Widen Abastoflor, Executive Director, CEPAC
Omar Miranda, Project Administrator, CEPAC
Ana Maria Vargas, Human Resources Manager, CEPAC
Dr. Osvaldo Chavez Co-Director of Health, CEPAC
Rosemary Samacuri, Area Supervisor Yapacaní, CEPAC
Delia Llanos, Area Supervisor San Carlos, CEPAC
Femida Gutierrez, Area Supervisor Buena Vista, CEPAC
Dr.Abel Monasterio, District Director, MOH
Dr. Patrick Van Dessel, Director, BTC

ATTACHMENT E
Results of the Evaluation

EVALUACION MEDIO TERMINO
PROYECTO SUPERVIVENCIA INFANTIL:CEPAC/IEF/MS

MADRES Y PADRES

1. ¿Cuales han sido los logros del programa de salud mas importantes hasta ahora?

Madres:

Los niños no se enferman seguido
Aprendimos mucho con las charlas educativas
Las visitas mensuales del E.M. nos traen beneficios (ej. vacunas)

Padres:

Mejor atención a la salud de las mujeres y de los niños
Recibimos educación para prevenir enfermedades
Otros:
Tenemos una posta con un auxiliar permanente en la comunidad

2. ¿Cómo ven el trabajo del auxiliar en su comunidad?

Madres:

Tiene paciencia y está dispuesto a trabajar- nos atiende bien
Nos capacita en temas de la salud
Hace visitas domiciliares
Otros:
Malo, porque no atiende tiempo completo

Padres:

Nos capacita en como prevenir enfermedades y solucionar problemas de salud

Malo, porque no atienden regularmente a la gente (ej. casi nunca viene/ solo viene con el E.M./ no trabaja los sábados y domingos/ tarda en llegar/ no viene para las emergencias)
Otros:
Es miembro de la comunidad y nos explica en nuestro idioma

3. ¿Hay RPS en su comunidad?

Madres:

No = 1
Si = 7
Hacen visitas domiciliares
Avisa casa por casa cuando va a visitar el E.M.
Refiere una persona al hospital cuando está grave
Dan charlas educativas y realice reuniones comunales

Padres:

No = 1

Si = 6

Nos enseña sobre todo lo que aprende en sus capacitaciones para prevenir enfermedades

Colabora en la coordinación entre la comunidad y el auxiliar de salud

Atiende a los enfermos en cualquier horario

Otros:

Falta tiempo e incentivos económicos

No realiza charlas en la comunidad/ no se preocupa por la comunidad/ no atiende bien/ no se realiza su trabajo, al contrario (ej. usa el medio de transporte para uso particular)

4. ¿Uds. han recibido consejos de los RPSs sobre la salud de su familia?

Madres:

No = 4

Si = 4 ¿Por ejemplo?

Nos da educación sobre la salud

Nos enseña sobre higiene

Nos enseña sobre control de desarrollo y crecimiento y alimentación de los niños

Padres:

No = 4

Si = 3 ¿Por ejemplo?

Nos enseña las medidas de prevención como cuidarnos y mejorar el estado de salud de la comunidad

Nos enseñan sobre la higiene, el tuberculosis, y el alcoholismo

5. ¿Uds. han recibido consejos de las enfermeras sobre la salud de su familia?

Madres:

No = 2

Si = 6 ¿Por ejemplo?

Higiene de los niños

Planificación familiar

Lactancia materna, alimentación complementaria, y nutrición

EDA/IRA

Padres:

No = 3

Si = 4 ¿Por ejemplo?

Planificación familiar

Lactancia materna, alcoholismo, higiene, nutrición

Control prenatal

6. ¿Cuáles de estos consejos han podido poner en práctica en su casa?

Madres:

Planificación familiar
Higiene
Lactancia materna y nutrición

Padres:

Planificación familiar
Higiene
Mejorar la prevención de enfermedades y desnutrición

7. ¿Que problemas tienen para poner todos los consejos en práctica?

Madres:

Falta de buenos alimentos para mejorar la nutrición
Falta de recursos para ir al hospital cuando alguien nos refiere
Otros:
Hervir el agua cambia el sabor
Las mujeres tienen ganas de vomitar al tomar sulfato ferroso

Padres:

Falta de información ("Nuestras esposas no nos comunican lo que han aprendido, y como no participamos en las reuniones, no podemos apoyarlas. Son las mujeres que ponen en práctica lo que han aprendido, pero sin el apoyo de los hombres, realmente hay poco que pueden cambiar.")

No han entendido bien
Falta de recursos
No quieren por una falta de voluntad

8. ¿Como pueden apoyar Uds. a los RPSs para que puedan mejorar su trabajo?

Madres:

Apoyo económico
Asistiendo cuando hacen reuniones en la comunidad
Otros:
Apoyo moral

Padres:

Apoyo continuo a través de talleres de capacitación
Apoyo económico
Otros:
Apoyo moral
Capacitar un RPS más para la comunidad
Proveer medios de transporte

9. ¿Cómo se informan Uds. de las actividades de salud en su comunidad?

Madres:

El RPS
El auxiliar o representante de salud
El parlante
Reuniones en la comunidad

Padres:

El auxiliar o representante de salud
La radio
Cartas/ Cronogramas
El parlante

10. Cuando hay necesidad Uds. van al Puesto de Salud?

Madres:

Si = 6
No = 2 ¿Por qué no van?
El hospital es más seguro y el material es más completo
En el puesto de salud no hay los medicamentos necesarios
Es muy lejos

Padres:

Si = 5
No = 2 ¿Por qué no van?
El puesto es muy lejos e inaccesible para la comunidad

11.¿Si el Equipo Móvil no viene a la comunidad, que harían para tener servicios de salud?

Madres:

Hacer reuniones en la comunidad para determinar que hacer
Escribir una carta de solicitud a las autoridades de salud para pedir apoyo

Otros:
Hacer bloqueos, o una huelga de hambre para reclamar que sigan viniendo

Padres:

Hacer reuniones en la comunidad para determinar que hacer
Hacer otros proyectos con otras organizaciones para continuar con las actividades
Capturar otros recursos y movilizarse a buscar apoyo
Pedir ayuda al distrito y a las autoridades

EVALUACION DE MEDIO TERMINO
Proyecto Supervivencia Infantil: CEPAC/IEF/MS

13 RPS

1. ¿Hace cuánto tiempo es Ud. RPS?
   1=<1 año 7=1-5 años 4=5-10 años 1=>10 años

2. ¿Ha recibido capacitación en este último año?
   Todos han recibido capacitación
   La mayoría en Lactancia Materna, TB, y Planificación Familiar

   Otros recibieron en SSR, Genero, Partos, EDAs

3. ¿Para qué le ha servido las capacitaciones para mejorar su trabajo?

Dar educación a la gente
Ganar la confianza de la comunidad
Prevenir enfermedades
Resolver los problemas de salud en la comunidad
Hacer seguimiento de casos de TB
Otros:
Entender el rol de RPS
Aprender como enseñar a la gente

4. ¿Como podemos mejorar las capacitaciones?

Tener capacitaciones mas continuas
No solo teoría- mas practica
Da material educativo
Contenidos mas claros y completos
Enseña el uso de medicamentos
Otros: Usar menos palabras técnicas, enseñar como trabajar con madres que no lean, entrega de material escrito sobre cada tema, respeta las fechas programadas

5. Que actividades realiza usted como RPS?
   Visitas domiciliarias
   Charlas/educación
   Identificación de enfermos y mujeres embarazadas
   Seguimiento de casos de TB
   Manejo de medicamentos
   Otros: coordina con la Auxiliar, CCD, reunión con la comunidad

6. ¿Cuales han sido sus ultimas actividades de IEC?

Festival	*Temas:*
Charlas comunitarias	*Lactancia Materna*
Visitas domiciliarias	*EDA/IRA, PF*
	Paludismo, TB

7. ¿Con cuantas familias trabaja Ud.? *20 – 55 familias*

8. ¿Que tipo de informes hace?
Informe de Actividades Mensuales
Algunas solo registran sus actividades en cuaderno y el Auxiliar llenar el informe

9. ¿Para que le sirve a usted el anotar las actividades en el informe?
Conocer que estamos haciendo
Informar al Puesto
Ver si están disminuyendo las enfermedades
Saber el estado de salud en la comunidad
Otros: hacer seguimiento, evalúe a mi mismo, informar a la comunidad

10. ¿Tiene información sobre la salud de su comunidad que comparten con las familias de la comunidad? *(CAIC Revísalo)*
La mayoría no comparten información con la comunidad
Uno dijo que solo con los dirigentes
Otro dijo "La comunidad no tiene nada que ver"

11. ¿Que ha hecho la comunidad en base a esta información?
Otros :Comparten problemas y soluciones
Solo quedo en papel – el comité tampoco ayudó
Toma mas en cuenta la salud
Acuden mas al Puesto
Reflexionan y traten de mejorar su conducta para prevenir enfermedades

Ejemplos específicos:
Buscar vacunas en caso de un brote
Fumigación de casas
Colaboración en la detección de casos de TB

12. ¿Tiene croquis de la comunidad? Como utiliza el croquis en su trabajo?
2 No y 11 Si
4 No utiliza
Ubicación de las casas
Usa con stickers (algunas no están actualizados)
Seguimiento de personas enfermos
Identificar grupos en riesgo

13. ¿Que tipo de apoyo recibe cuando lo visita el Personal de Salud?
4 no reciben visitas
Ayuda en su trabajo
Capacitación
Responda a preguntas
Otro: quiero que el EM nos toman en cuenta mas

14. ¿Cada cuanto recibe este tipo de visitas?
La mayoría mensual
Otro: Visitas del EM mas de con la Auxiliar

15. ¿Como podemos sacar el máximo provecho a estas visitas?
Hacer mas preguntas durante la visita
Ayudar proporcionando materiales

Otros: Trabajar mas directo con el Auxiliar
Mejorar la comunicación de fechas de visitas
Integración del RPS en el equipo y las actividades educativas

16. ¿Qué es la Lactancia Materna Exclusiva?
7—solo leche materna para 6 meses
1---solo leche, sin otros alimentos ni líquidos
6--- no saben o incorrecto

17. Si un niño tiene diarrea, como va a saber si necesita mandarlo al Puesto?
6 --- Signos de deshidratación
7 --- No saben o incorrecto

18. Si un niño tiene infección respiratoria, como va a saber si necesita mandarlo al Puesto?
1 --- dos signos de neumonía
2 --- un signo de neumonía
10 – no saben o incorrecto

19. ¿A que edad debe recibir un niño la vacuna triple (DPT)?
3 --- Saben
10 --- No saben o incorrecto

20. ¿En su opinión, el programa de salud de CEPAC ha podido cambiar practicas de salud en su comunidad?
Todos piensan que ha cambiado practicas
Por ejemplo:
Mas uso de los servicios de la Posta
Mejor hábitos alimenticias
Mejor higiene
Mas personas saben reconocer y tratar las enfermedades

21. ¿Como puede mejorar este aspecto?
Hacer visitas domiciliarias mas seguidas
Educar mas constante
Usar materiales educativas
Festivales ayuda mucho
Otros: Hablar Quechua, ser ejemplo para lograr cambios en otros, hacer participar mas a los RPSs en actividades educativas

22. ¿Que problemas ha tenido para desarrollar su labor como RPS?
Falta de tiempo
Distancias largas entre casas
La comunidad quiere medicamentos para curar las enfermedades, no prevenirlas
Falta de material educativo
Falta dinero para pasajes
Otro: Los médicos no respetan los RPSs ni sus opiniones

23. ¿Cómo se puede evitar el abandono de RPSs?
Aumentar el reconocimientos y apoyo de la comunidad
Mas supervisión/seguimiento
Entrega de materiales
Mas capacitaciones
Ayuda medica gratis
Pagar pasajes
Ayuda económico

Otro: que les toman en cuenta las enfermeras y médicos

Inventario de Materiales y Equipo

Item	Si	No	Comentarios
SRO	4	9	
Rotafolio de Lactancia Materna	11	2	
Manual de Lactancia Materna	11	2	
Laminas de Lactancia Materna	11	2	Muchas solo fotocopias
Otro Material de IEC	9	4	PF, TB Y IRA/EDA
Registros	11	2	
Botiquín de Medicamentos	5	8	
Cotrimoxazole	5	8	

EVALUACION MEDIO TERMINO
PROYECTO SUPERVIVENCIA INFANTIL:CEPAC/IEF/MS

6 AUXILIARES DEL PUESTO SANITARIO

1.¿Hace cuánto tiempo trabaja en este Puesto de Salud?
1 =<1 año 2=1-5 años 1=5-10 años 2 >10 años

2.¿Cuáles son los objetivos del Proyecto Supervivencia Infantil?
Prevenir enfermedades
Disminuir la desnutrición
Dar servicios como Vitamina A, hierro, desparasitación, medicamentos
Aumentar la cobertura de vacunas
CCD
Otro: Mejorar la calidad de atención

3. ¿Cual es su rol dentro del proyecto?
Trabajar con todos los programas como Auxiliar
Coordinar con el EM con salidas a las comunidades
Otro: Tener mas contacto con la gente

4. ¿Ha recibido capacitación en este último año?
Todos ha recibido capacitación
3 IEC *Algunas ha recibido AIEPI el año pasado*
5 Lactancia Materna
2 Riesgos Obstétricos
2 TAC
2 TB

5. ¿Piensa que las capacitaciones que ha recibido han sido adecuadas?
Todos piensan que han sido adecuadas
Sirven para aclarar dudas, mejorar la calidad del trabajo, recibir ideas nuevas.
Pueden mejorarlas dando capacitaciones mas continuas y dando una guía de la capacitación para replicarla

6. ¿En su opinión, el trabajo en Supervivencia Infantil ha podido cambiar practicas de salud en las comunidades?
Todos piensan que ha podido cambiar practicas
Por ejemplo:
Acuden mas para recibir vacunas
Mayor uso de servicios en el Puesto
Mas interés en el CCD y uso del CSI
Mejoras practicas nutricionales

7.¿Como puede mejorar este aspecto?
Educación continua *Seguir con festivales*
Usar otras maneras de llegar a la gente- vídeo, radio, etc.

8. Ha recibido visitas de supervisión y monitoreo en los últimos dos meses?
3 No 3 Si

¿Como han servido en su trabajo las visitas de supervisión y monitoreo?
Ver debilidades y corregirlas
Mejorar el registro de los servicios
Otro: Tener meta para superar

9. ¿Cómo se puede mejorar estas visitas?
Hacerlas mas frecuentes
Revisar mas los registros
Tomar mas tiempo durante la visita
Otros: Respetar la fecha programada
Pedir supervisión según necesidad

10. ¿Le ha visitado el Responsable de Vacunas del Distrito?
6 No (Fue prematura la pregunta por que todavía no esta saliendo)

11. ¿Como esta usando la información del SNIS en la toma de decisiones?
Otros: Ver debilidades
Mejorar cobertura
Priorizar acciones
Demostrar el trabajo que realizamos
Tomar decisiones
Informar al Area
Ver necesidades de insumos
Monitorear el estado de salud

13. ¿Siempre tiene los materiales suficientes para hacer su trabajo?
Los insumos de Seguro Básico si tiene
Falta otros materiales
Falta vacunas mas que todo
2 dijo que están sin problemas

14. ¿Como se puede mejorar el sistema logístico (SIAL)
Hacer un descargo oportuno
Mejorar la programación
Otro: Dar un stock de reserva

15. Como se puede fortalecer la coordinación entre el personal del Distrito y CEPAC?
La mayoría dijo que no existen problemas de coordinación
Hacer una planificación en equipo
Respetar la programación
Otro: Fijar horario de salida mañana o tarde
De información oportunamente

16. ¿Como se puede mejorar la coordinación entre el personal del Distrito y las comunidades?

Hacer visitas domiciliarias
Coordinar con el Comité de Salud y los autoridades
Promocionar los servicios que ofrezca el puesto y el rol del Distrito

17. ¿Qué beneficios le da el trabajo con el Equipo Móvil en su relación con la comunidad?
Permite llegar con servicios a mas personas
Permite llegar a comunidades lejanas
Tiene insumos y medico
Otro: El EM tiene buenas relaciones con la comunidad

18. ¿Cuales han sido los logros mas importantes del Programa de Salud de CEPAC?
Incrementar la cobertura (vacunas, CCD, CPN, etc.)
Disminuir las enfermedades
Incrementar las visitas a mas comunidades
Educación a través del IEC

Otro: Mejorar la calidad de atención

19. ¿Cuales son los puntos débiles del trabajo de CEPAC?
La mitad piensan que no hay debilidades
Comunicación y coordinación con las comunidades
Puntualidad
Coordinación sobre el horario

20. ¿Como se puede mejorar el trabajo conjuntos?
Mejorar la coordinación y programación
Otros:
Comunicación oportuna
Compartiendo ideas mas

21. ¿Cuando el proyecto termina, va a poder seguir con todas las actividades?
La mayoría piensa que no van a poder cumplir 100% por falta de recursos humanos y transporte
También: *Viajando en moto no pude llevar todos los materiales*
La frecuencia de visitas bajaría
No van a poder llegar a las comunidades mas lejanas

Inventario de Materiales y Equipo

N=6

Item	Si	No	Comentarios
Tallimetro	6		1 en mala condición
Sulfato Ferroso – Gotas	3	3	
Carnet de Salud Infantil *(Cuantos?)*	6	1	Promedio 14 1con fotocopias
Rotafolio de Lactancia Materna	5		
Manual de Lactancia Materna	6	4	
Laminas de Lactancia Materna	6	4	
Trípticos de PAI	2	6	
Boletines de PAI	2	5	
Panfletos de PAI		6	
Franelografos de PAI		5	1 en blanco
Otros materiales IEC	6		EDA/IRA, TB, PF, SSR
Heladera y/o congelador exclusivo para vacunas	4	2	
Paquete en el congelador	4	2	
Termómetro	4	2	
Hoja de Temperatura actualizado	4	2	
Garrafa de gas en reserva	3	2	1 usa electricidad
Termos para actividades extramural	5	1	
Plan de Emergencia si falla la cadena de frío	3	3	
Jeringas	6		
Biológicos	5	1	1 no tiene cadena de frío
Kardex actualizado	2	4	
Gráfico de coberturas actualizado	5	1	
Manual Técnico de PAI	6		
Normas de EDA y IRA	3	3	
Formularios de AIEPI	5	1	
Registros de SNIS	5	1	
Registro de Referencia/Contra-referencia	5	1	

EVALUACION DE MEDIO TERMINO
Proyecto Supervivencia Infantil: CEPAC/IEF/MS
Líderes/Miembros del Comité – 8 comunidades

1. ¿Que tipo de actividades de salud se realizan en su comunidad?

- *Colaboran en Festival de Salud*
- *Coordinación para construcción de infraestructura de salud*
- *Colaborar a personas sin recursos para transporte en casos de enfermedad*

Otro: Cambiar a la auxiliar de enfermería que no trabajaba bien por otra persona

2. ¿Cada cuanto tiempo los hacen?

- *Según necesidad*
- *Festival una vez al año*

3. ¿Qué les parece las actividades de salud que se realizan en su comunidad?

- *Hacen falta más visitas y con médico*
- *Bien, la comunidad y los niños aprenden sobre salud*

Otros: CEPAC, y el Distrito tienen que cumplir con la programación, respetar lo que nos dicen, varias veces la gente se ha reunido y el E.M. no ha venido o vienen cuando nosotros, no estamos
No es suficiente si la auxiliar trabaja solo medio tiempo y vive en otra comunidad

Se necesitan otras atenciones, p.e. dentista y alguna vez especialistas

4. ¿Uds. tienen información sobre el estado de salud de las familias en su comunidad?

No - 3

- *Las enfermeras son las que tienen esta información*
- *Alguna vez nos informan el auxiliar o RPS*

Otros: La auxiliar de enfermería nos informa cuando la invitamos a reunión
Las familias tienen Carnets, pero tampoco saben el estado de salud de su familia

5. ¿Cómo están usando la información sobre la salud para tomar decisiones y hacer acciones?

- *Casi no conocemos nada, no tomamos decisiones*

Otros: Han creado fondo comunal para medicamentos
Para buscar una forma de ayudar a la enfermera de la posta
Para planificar actividades de salud en la comunidad
Plan de emergencia
Solicitudes formales por escrito al Distrito (malaria, botiquín) sin respuesta, la Alcaldía tampoco cumple, esto genera frustración

6. Uds. manejan un Libro de Actas de decisiones que han tomados acerca de la salud en su comunidad?

- *La mayoría respondió que maneja libro de actas de la reunión mensual de comunal*
- *No se pudo revisar en ningún caso por no estar disponible*
- *Cuando hay acuerdos de salud, si se registran*

Otro: Hay otro libro para informe económico de los medicamentos

7. ¿Cuales son los beneficios que han ocurrido en su comunidad con las actividades de salud realizadas en los últimos 2 años?

- *Orientación y educación a las familias*
- *Control de Crecimiento y Desarrollo de los niños*
- *Control Prenatal de las madres*
- *Más higiene y aseo*
- *La comunidad sabe más de salud*

8. ¿Las actividades de salud realizadas han podido cambiar prácticas de salud en su comunidad?

Todos respondieron afirmativamente

- *Mayor cuidado de los niños para que no enfermen*
- *Mas atención a las mujeres*
- *Planificación familiar*
- *La gente acude más a la Posta*

Otros: Más higiene, aseo
Mujeres menos tímidas, participan más

9. Como puede mejorar este aspecto?

- *Mejor comunicación con la comunidad*
- *Mayor participación de la comunidad*

Otro: Más visitas domiciliarias

10. ¿Ud. ha participado en un Festival de Salud Comunitaria?

No : 1
Si : 7

11. ¿Cual ha sido su rol en el Festival de Salud Comunitaria?

- *Observador y aprendiendo temas*
- *Preparación de carpas*
- *Facilitador*

Otros: Coordinación, Actividades culturales

12. ¿Piensa que el Festival ha sido una manera efectiva de llegar a la gente con mensajes de salud?

- *Si, hay mucho para aprender, mejoran los conocimientos de la gente*
- *Despierta interés de la gente*
- *Muchos niños participan*

13. Como se puede mejorar los Festivales en el futuro?

- *Dar otros temas*
- *Preparar más materiales nuevos*

Otros: Comunicación con más anticipación
Evaluar la participación de la gente
Reunirse después del festival facilitadores y capacitadores

Mayor participación de los dirigentes
Informar más a los jóvenes para despertar su interés
Mezclar temas de salud y actividades sociales
Oír opiniones de los demás
Dar temas sobre alcoholismo, drogadicción y machismo
Informar después a los líderes, si hay cambios de salud

14. ¿Como se puede la comunidad apoyar el trabajo del RPSs?

- *Ayudarle con sus pasajes*
- *Mayor conocimiento y valoración de su trabajo*
- *Cobrar algunas atenciones*

Otros: Ayudarle en su trabajo en el chaco
Dar alimentación , materiales

15, ¿Qué puede hacer la comunidad para mantener las actividades de salud en el futuro?
Buscar apoyo de otras organizaciones, ONGs.
Otros: Mayor organización comunitaria
Capacitar una persona de la comunidad
Capacitar más a los RPS
Buscar solución entre comunidad y autoridades
Comprar más medicamentos
Aumentar consultas del RPS
Tener un botiquín
Apoyar más al RPS
Dar un aporte económico de la comunidad

EVALUACION MEDIO TERMINO
PROYECTO SUPERVIVENCIA INFANTIL: CEPAC/IEF/MS

Profesores de 7 comunidades

1. ¿Ha recibido alguna capacitación en salud en este año? ¿Qué?

   Si – 4 No – 3

   Capacitación para el Festival de Salud:

- *Lactancia materna*
- *Nutrición*
- *Planificación familiar*
- *Control prenatal, parto, puerperio*

Otros: Vacunas, IRAS, EDAS, Tuberculosis, ITS, Mortalidad materna infantil

1. ¿Cómo esta el estado de salud en su comunidad?

- *Muchas enfermedades*
- *Regular*
- *Mejor que antes*

Otros: Muchas IRAS-EDAS, paludismo, parasitosis

2. ¿En qué actividades de salud ha participado este año con los niños y padres de familia?

- *Charlas sobre higiene y limpieza*
- *Festival de salud*

Otro: Saneamiento básico

3. ¿Cuales piensa que han sido los logros del programa de salud de CEPAC mas importantes hasta ahora?

- *Conscientización de la comunidad*
- *Las madres hacen vacunar más a sus niños*
- *Planificación familiar*
- *Mejoró la salud de las familias*
- *Mayor demanda de atención de salud*
- *Educación en salud para la comunidad*
- *Capacitación de los profesores con el Festival*

Otro: Botiquín de medicamentos

4. ¿En su opinión, el proyecto ha podido cambiar practicas de salud en las comunidades?

No - 2
Si - 5

- *Mayor prevención de enfermedades*
- *Acuden más a la posta*
- *Más niños vacunados*
- *Más higiene*
- *Planificación familiar*
- *Más conscientes sobre su salud*

5. ¿Como puede mejorar este aspecto?

No respondieron 4

- *Capacitación constante a las mamás y también a los papás*
- *Más cuidado con la higiene*
- *Construyendo letrinas*

Otro: Ampliar posta y tener médico

6. ¿Ud. ha participado en un Festival de Salud Comunitaria?

No - 2
Si - 5

7. ¿Cual ha sido su rol en el Festival de Salud Comunitaria?

- *Todos participaron como facilitadores*

8. ¿Piensa que el Festival ha sido una manera efectiva de llegar a la gente con mensajes de salud?

- *Los juegos y materiales son buenos para enseñar*
- *Motiva la participación de la gente*

Otro: Los premios y rifas movilizan y aumentan la participación

9. ¿Como se puede mejorar los Festivales en el futuro?

- *Más temas y más materiales educativos*
- *Mayor participación de la comunidad*

Otros: Videos para los jóvenes
Combinar con actividades folklóricas
Más prácticas de primeros auxilios
Rotación de materiales educativos entre el auxiliar y los profesores

10. ¿Tiene otras recomendaciones como se puede mejorar las actividades de salud?

- *Mejor comunicación para los que viven lejos, porque no saben cuando viene el EM*
- *Visita del EM cada 15 días*
- *Construcción de letrinas*
- *Atención permanente en la Posta*
- *Entregar material de IEC a los profesores*

Otros: Que el RPS sea más dinámico y tenga botiquín
- *Capacitar para festivales a personas mayores del lugar*
- *Que el Festival de Salud sea dos veces al año*

RESULTS OF THE EVALUATION
EDA/IRA

Situación Ideal	Situación Actual	Recomendaciones
Materiales Formulario de AIEPI Cotrimoxizole Jarra – vaso (utensilios de cocina) Botiquín con medicamento Material educativo (Rota folios – franelografos – videos) SRO Protocolos y normas de atención de EDA – IRA	* la mayoría de los Establecimientos de Salud (ES) cuentan con forma de AIEDI, no así en los E.S. de Buena Vista que solo tiene fotocopias y en poca cantidad. * En E.S. de Yapacaní no se cuenta con suficientes medicamentos.* Utensilios básicos de cocina disponible. * Materiales educativo disponible excepto vídos. * SRO disponible en E.S. * Al ser consultados los auxiliares no disponen de normas de antención de IRA - EDA sin embargo existen documentos de AIEPI – S.B.S. * No en todos los Equipo Se usan los formularios AIEPI.	***** Reforzamiento de capacitación manejo formulario AIEPI. * Distrito y área presionan cancelación deuda atrasada SBS – Yapacaní. * Distrito, CEPAC y CTB gestionan dotación de SRO a los RPS . * Promover de acuerdo a necesidades * Cuadrar rol de R.P.S. a todo nivel. * Fortalecer la interacción RPS/ Personal de Salud/COMUNIDAD * Reforzar capacitación AIEPI a PS especialmente in IRA–EDA. * Capacitara a R.P.S. sobre IRA-EDA *****Aplicar la supervisión capacitante para corregir fallas en el manejo y registro de información.
Recursos Humanos Auxiliar de enfermería capacitados RPS Capacitados Médico que acompañe al E.M. en comunidades con mucha afluencia de pacientes	* Existen Auxiliar en enfermeria capacitados, el Nº es suficiente hay comunidades muy dispersos que quedan sin atención. * No todas las comunidades tienen R.P.S. * El rol del R.P.S. no esta claro para la comunidad. * Falta mayor comunicación R.P.S. y comunidad. * Falta interacción Comunidad – R.P.S. – Puesto de Salud débil. * No todas las salidas del en son apoyados con médicos * Existen comunidades priorizadas que se visitan cada mes y a otros bimensual – y sería mejor c/ medico.	

IRA/EDA (cont.)

Situación Ideal	Situación Actual	Recomendaciones
Sistemas Sistema información registro Apoyo logístico (insumos) Registro de referencia y contrareferencias, Supervisión	* Los equipos de EMT han confirmado que existen los instrumentos de Reg. en E.S. pero no se verifico su uso. * El equipo analizo este punto y concluye que el manejo y registro de EDA-IRA no es correcto " que tener flojera revisar la infiltil del E.S. * Insumos necesariso y disponibles. *Sistema de referencias y débil – contrarreferencia no existe * Sistema de supervisión débil en contenido y tiempo	Promover encuentros por área (supervisor del área, Supervisor EM, Auxiliar y RPS) para análisis de actividades de seguimiento y evaluación Reciclar conocimientos y metodologías de educación en salud del Personal Salud para mayor impacto a nivel de comunidad y pacientes. Apoyar la consolidación del centro de capacitación del distrito. Promover las vistas domiciliarias con registro de información
Actividades Seguimiento y Evaluación Coordinación inter-institucional Capacitación al personal en el manejo de programas Promoción y educación a la comunidad Identificación de signos de peligro Tratamiento oportuno y seguimiento Referencia de caos graves Manejo y uso adecuado de formularios (AIEPI) Visitas domiciliarias Ordenación y educación al Paciente Manejo y uso racional de insumos	Seguimiento y evaluación débil. * Coordinación inter-institucional buena y permanente. * Cap. IRA – EDA no hay en R.P.S. y en auxiliar se necesita reforzamiento. * Muy poca promoción de actividades de educación muy limitada sin demostración práctica. * Identificación de Signos de peligro a nivel de auxiliar existe, a nivel de R.P.S. no. * El tratamiento no siempre es oportuno y el seguimiento no se hace. * Se realiza referencia de casos graves. * Aun no se ha llegado al uso adecuado del AIEPI. * A nivel de los E.S. las visitas domiciliarias recientemente se esta promocionando. * Orientación y educación a paciente débil y limitada. * El manejo y uso racional de medicamentos esta mejorando.	1. Promover encuentro por área (supervisión por áreas supervisión por E.M. Auxiliar enfermería y R.P.S.) para análisis de actividad de seguimiento y evaluación. 2. Reciclar conocimientos y metodológicos de educación en salud del Personal Salud para mayor impacto a nivel de comunidad y pacientes. 3. Apoyar la consolidación del centro de capacitación del distrito. 4. Promover las vistas domiciliarias con registro de información

NUTRICION

Situación Ideal	Situación Actual	Recomendaciones
<u>Materiales</u> Vitamina "A Sulfato Ferroso Tabletas (mayores) Gotas (niños) Aceite Vitaminado Harina Fortificada Sal Yodada Platos – ollas Cucharas Tallimetro Balanza (de pie bandeja) *Materiales de IEC Manuales Cuñas (Radiales) Recetas Videos (TV-VHS) Rotafolios Juegos ludicos Muñecas Materiales Impresos Vehículos Gasolina C.S.I. Registro AIEPI	* No en todas las áreas se promocionan el consumo de sal y harina fortificada * No todos los sectores cuentan con hierro.aceite vitaminado en suficiente cantidad. * Se carece de material audiovisual o material impreso y otros materiales y utensilios para utilizar en las demostraciones culinarias * Existen carencia de combustible en los sectores para el trabajo comunitario.	* Promoción del consumo de sal yodada y harina fortificada a nivel distrital. * Garantizar la existencia de gotas de hierro y aceite vitaminado (insumos en general) * Elaborar materiales impresos y vídeos sobre nutrición, además contra con utensilios.

NUTRICION (cont.)

Situación Ideal	Situación Actual	Recomendaciones
Recursos Humanos Equipo de facilitadores del distrito (médicos supervisoras) Equipo de capacitación de área (facilitadores) Auxiliares, RPS, Promotores Nutricionista, comunicadoras Supervisoras Auxiliares de salud	* Existe una falta en la atención continua de los auxiliares y RPS a las comunidades. * Falta de nutricionista en el distrito y que llegue a las comunidades.	* Realizar un mayor seguimiento a loas actividades que realizan las auxiliares y los R.P.S. en las comunidades.
Sistemas Sistema de planificación, seguimiento y evaluación Control de calidad Sistema de administración (equipamiento y gastos fijos) Supervisión capacitante Sistema de monitoreo de IEC.	* No se respeta las programaciones de vista a las comunidades. * Control de calidad en proceso. * Existe solicitudes de la comunidad de equipamiento u otras que no se dan respuesta. * No existe una buena sistema de monitoreo de los participantes en los festivales de salud y visitas comunitarias. * No hacen uso de la práctica de cambio de comportamiento de las madres. * Actualmente no se respetan fechas de capacitación. * Insumos insuficientes. * Existe demanda de supervisión de los auxiliares y RPS según necesidad. * Solo de cuenta con un material para capacitación y educación sobre nutrición para festivales de IEC y charlas en las comunidades. * Hasta el momento no se da importancia al tema de nutrición a todo nivel.	* Informar a los E.M. sobre programaciones de capacitación u otras actividades antes que se realice la programación de salidas o visitas comunitarias. En caso de existir otros problemas comunicar a loas comunidades la suspensión de las actividades * Hacer uso de la práctica de cambio de comportamiento en todas las actividades de educación alas comunidades. * Elaborar un sistema de monitoreo de la participación en actividades de salud (E.M. y IEC) de las comunidades. * Implementar la capacitación al equipo de capacitación en temas de nutrición * Implementación de la metodología de la desviación positiva (recuperación de niños desnutridos)

NUTRICION (cont.)

Situación Ideal	Situación Actual	Recomendaciones
<u>Actividades</u> POA del distrito Ichilo Actividades de CDD Elaboración de programas de capacitación Administración de vitamina "A" Cronograma Dotación de sulfato ferroso Programación (CAI) Supervisión Registro de C.S.I. Llenado del SNIS IEC--Festivales de salud comunitaria Charlas comunitarias (equipo móvil) Capacitación a facilitadores (distrito) Capacitación a educadores (auxiliares y RPS) Charlas comunitarias auxiliares y RPS	* No se respeta las programaciones de vista a las comunidades. * Control de calidad en proceso. * Existe solicitudes de la comunidad de equipamiento u otras que no se dan respuesta. * No existe una buena sistema de monitoreo de los participantes en los festivales de salud y visitas comunitarias. * No hacen uso de la práctica de cambio de comportamiento de las madres. * Actualmente no se respetan fechas de capacitación. * Insumos insuficientes. * Existe demanda de supervisión de los auxiliares y RPS según necesidad. * Solo de cuenta con un material para capacitación y educación sobre nutrición para festivales de IEC y charlas en las comunidades. * Hasta el momento no se da importancia al tema de nutrición a todo nivel.	*Desarrollar estrategias de actividades de nutrición.

PAI

Situación Ideal	Situación Actual	Recomendaciones
Materiales Vacunas Jeringas Peritos Algodón Alcohol Termómetros Termos Conservadoras Heladeras Movilidades Motos Combustible Respuestas *Materiales IEC Trípticos Panfletos Franelografos Boletines SNIS Registros Formularios de solicitud Registro de Control Carnet SI Listas de verificación	- Falta de algunas vacunas por la dotación insuficiente (por población Sub estima) – jeringas. - Solo tienen 4 perritos cada termo - Algodón y alcohol insuficiente en campañas de vacunas - se tienen medios de transporte, existen problemas con el combustible y mantenimiento, las alcaldías no asumen esta responsabilidad - Material de IEC insuficiente.	- Promover reunión con el SEDES para modificar la programación de biológicos e insumos con resultados del Censo 2001 - Seguimiento al manejo del SIAL. - Exigir a las Alcaldías el desembolsos del SBS. - Hacer seguimiento de la dotación de perritos. - Sensibilizar a la comunidad y autoridades municipales para que demanden y exijan presupuesto POA para garantizar el mantenimiento y combustible de los medios de transporte y compra de gas para el funcionamiento de la cadena de frío. - Buscar fondos para la elaboración del material de IEC.
Recursos Humanos SEDES DISTRITO AREAS SECTORES Equipo móvil - RPS Responsable de vacunas del distrito capacitado en mantenimiento de cadena de frío Todo el personal capacitados en técnicas supervisión, SIAL – IEC – AIEPI	- Insuficiente personal para salud publica en hospital para trab – comunitario.	- Capacitar a los R.P.S. en PAI.
Sistemas Sistema de planificación/programación Cadena de Frío funcionado en todo los centros por servicios de salud en la provincia Ichilo . Sistema de información y registro. Sistema de supervisión. Seguimiento Estándares de calidad Sistema de transporte, movilidad y mantenimiento. Sistema de incentivos para el personal de	Apoyo Económico insuficiente y mala distribución	- Acuerdos a tomarse en el consejo distrital de salud para la distribución económica de acuerdo a la población. - Fortalecer el sistema de monitoreo de calidad del registro de las vacunas (1ra y 3ra dosis pentavalente).

salud. SIAL		
<u>Actividades</u> Medición de calidad PAI regular Visitas de los equipos móviles Campañas de vacunación IEC-AIEPI Visitas de supervisión capacitantes	- No se respeta las fechas. Programadas por falta de coordinación.	- Comunicar con la comunidad con anticipación cualquier cambió a realizarse

Educación en Salud

Aspectos Positivos	Aspectos por Mejorar	Recomendaciones
- Se cuenta con un equipo de capacitación a nivel distrital multi-disciplinario. - La capacitación a todo nivel de personal sobre lactancia materna y alimentación complementaria es un avance no previsto a nivel distrital. - Personal suficiente para capacitar. - Todas las áreas cuentan con equipo para la proyección de videos. - Existe material educativo sobre algunos temas a todo nivel. - La población es receptiva y participa en actividades educativas.	- Implementar temas de nutrición dentro del programa de capacitación del distrito (contenidos teóricos y prácticos). * A nivel distrital no se realizaron capacitaciones en nutrición - Algunos materiales de IEC no están acordes con los mensajes básicos. - La validación de material educativo no se realiza a nivel de sector. - No se cuenta con una metodología definida. - No siempre los mensajes transmitidos por el personal de salud son los más adecuadas. - El personal de salud del distrito no maneja lista de verificación de MCC. - No se refuerzan temas educativos ya desarrollados. - Los RPS están sub-utilizados. - La planificación de los temas no son acordes con la necesidades epidemiologicas - No se desarrollan suficientes prácticas en las sesiones educativas. - No todo el personal maneja técnicas y metodologías para realizar capacitaciones. - No existe una metodología de monitoreo de cambio de prácticas (L.M) - No se utilizan los equipos de videos en las comunidades-- se cuenta con pocos videos.	- Elaborar e implementar el Programa de Educación Alimentaria Nutricional a nivel distrital - Revisar los materiales de IEC para identificar vacíos y desarrollar materiales complementarios - La elaboración de materiales de IEC debe contar con la participación del equipo técnico Distrital de capacitación, incorporando a la nutricionista –Definir contenido mensajes claves con enfoque integral - La validación de materiales a nivel Sector con la involucración de auxiliares y RPSs - Complementar una metodología con otra (medios masivos, festivales, sesiones) - Aprovechar la supervisión capacitante para reforzar aspectos débiles en relación a la Educación en Salud y Nutrición

RPS

Aspectos Positivos	Aspectos por Mejorar	Recomendaciones
El compromiso y voluntad de servicios de R.P.S. Red de R.P.S conformado. Plan / sistema de capacitación del RPS. R.P.S. considerando como "líder" de la comunidad. Las comunidades tienen más accesos a servicio de salud a través del RPS El RPS hace visitas domiciliares Organización de RPS y reconocimiento.	* La relación entre RPS, personal de salud y comunidad. * Asistencia médica del RPS por igual en las tres áreas. * Incentivos para el RPS en términos de materiales (botiquín, etc.) * Sistema de capacitación, específicamente mejorar la metodología (teórica X práctica) * Difundir el perfil del RPS. * Las convocatorias para los talleres sean oportunas. *No respeta y cumple con el cronograma de capacitación. * Participación de las Alcaldías del municipio en los desembolso económicos para capacitación. * El sistema de CAI sectorial. * El sistema de información y registro.	- Difundir el rol y actividades del RPS en las reuniones comunales mensuales - CAI Sectorial Participativo, Rotativo (incluyendo RPS, auxiliar, capacitante, autoridades comunales, etc) - Retroalimentación del RPS a través de CAI Sectorial - Definir un sistema de incentivos/motivación para el RPS (certificados, atención gratuita, materiales) - Hacer acompañamiento o seguimiento continuo al trabajo del RPS a traves del auxiliar y el equipo móvil - Integrar al RPS en la supervisión capacitantes del Sector- Realizadas por Areas - Introducir dentro del POA Municipal , Recursos Económicos, para actividades de Capacitación y Educación de RPS. - Gestionar Recursos Económicos Semestrales de municipios y cooperaciones - Realizar reuniones de intercambio experiencias entre personal de Salud y RPS de Actividades Recreativas. - Las convocatorias sean oportunas, para los talleres y avisos por radios e invitaciones escritas) - Modificar la metodología de capacitación para que enfoque más en la práctica y menos en la teoría de acuerdo al perfil del RPS. - Entregar material complementario de los temas que se da en la capacitación - Mejorar el uso de la boleta de referencia y cumplir con la carta referencia - Mejorar los registros de información e informes - Hacer participe a la comunidad en la entrega de materiales al RPS y elaborar el respectivo documento.

Responsabilidades de la Comunidad/ Municipalidad

Aspectos Positivos	Aspectos por Mejorar	Recomendaciones
Comunidad: + Reconoce el trabajo de E.M. + Demanda servicios -- Aceptación y confianza. + Participa en los procesos y actividades. + Comités de salud apoyan las actividades y participan activamente + Apropiación de los programas (quieren involucrase en la toma de decisiones) + Les interesa tener RPS. + Apoya a los RPS + Existen Lideres comprometidos con el sistema de salud **Gobierno Municipal.** + Asume algunas responsabilidades. + Existen recursos económicos para S.B.S. + Existe 10% del S.B.S para rondas médicas. + Tiene recursos Ley de Participación Popular + Existen personas comprometidas con sistema de salud. + Tiene competencias jurídicas (ordenanzas)	**Comunidad:** Comité de salud Completar en comunidades que falta Reforzar la difusión de funciones Hacerles participar en actividades Actitudes y prácticas saludables Valorar la prevención Higiene Nutrición Dirigente: Priorizar la salud Prestar mas atención Apoyo al RPS Mayor formalidad y responsabilidad R.P.S. Devolver conocimiento a la comunidad Informar a la comunidad Informar a los servicios Registrar la información **Gobierno Municipal:** SBS Cumplimiento en desembolsos Autoridades Sensibilizadas y comprometidas Continuidad de compromisos asumidos Información en salud Recursos económicos Priorizar temas de salud Destinar mayor cantidad Desembolsos oportuno	- Firmar convenios con las comunidades para asegurar su participación en actividades de salud - Mejorar la organización y capacitar a los comités de salud - Desarrollar sistema de monitoreo a los procesos educativos - Informar a la comunidad sobre el rol de RPS - Apoyar el funcionamiento de CAI sector y seguimiento a RPS - Informar periódicamente al Gobierno Municipal (verbal-escrito) y al comité de vigilancia - Hacer funcionar los consejos municipales y Distritales de salud mensualmente - Preparar y negociar recursos en las POA´s como fondos comprometidos usando las contrapartes de cooperaciones y ONG´s - Preparar boletín informativo para dirigentes que participan en POA´s - Proponer temas para ordenanzas municipales y difundir las aprobadas (sal yodada) - Preparar plan de desembolsos anual (aprobado en Consejo Municipal) y hacer seguimiento. - Preparar un medio impreso para la comunidad.

Attachment F
Recommended changes in Project Indicators

DIP Indicator	Suggested Change	Justification
EPI Intervention: **1**. Increase % of children 12- 24 months of age fully immunized from 40% (Y) & 25% (SC/BV) to 85% in all areas.	**1**. Increase % of children **12- 23 months** of age fully immunized from 40% (Y) & 25% (SC/BV) to 85% in all areas.	Consistency of age groups. The target is very high and should be lowered.
2. Increase % of children fully immunized before one year of age (<13 mo.) from 14% (Y) & 12% (SC/BV) to 50% in all areas.	**2.** Increase % of children **12-23 m** who were fully immunized before their first birthday (<12 mo.) from 14% (Y) & 12% (SC/BV) to 50% in all areas.	Consistency of age groups. The target is very high and should be lowered.
3. Increase % of WCBA with at least two TT vaccinations reported on maternal health card from 30% (Y) & 25% (SC/BV) to 60% in all areas.	**3.** Increase % of **women with a child<2** who have received at least two TT vaccinations reported on maternal health card from 30% (Y) & 25% (SC/BV) to 60% in all areas.	KPC does not measure WRA, only women with child <2.
4. Increase availability of all vaccines at health facilities to 80% (current levels: TB—22%, Polio—42%, DPT--42%, Measles--29%, and TT--42%).	**4**. Increase availability of all vaccines at health facilities to 80% (current levels: **BCG**—22%, Polio—42%, DPT--42%, Measles--29%, and TT--42%).	Consistency with international terminology
5. Increase from 66% to 100% the number of facilities that have a community vaccination registry.	No Change	
6. New MOH Vaccine/Cold Chain Coordinator visits each facility monthly and reports checklist data to Ichilo Province partners (IEF/CEPAC, Belgian Technical Cooperation).	**6.** New MOH Vaccine/Cold Chain Coordinator visits each facility **quarterly** and reports checklist data to Ichilo Province partners (IEF/CEPAC, Belgian Technical Cooperation).	With 25 health facilities it is impossible that they would all be visited every month. Every three months would provide sufficient supervision.
Nutrition/VA Micronutrients **1.** Increase coverage of VA (2 doses) of 12-24 month olds from 3% (KPC) to 85% as verified on health card.	**1.** Increase coverage of VA (2 doses) of **12-23 month** olds from **7%-Y & 1%-SC/BV** to 85% as verified on health card.	Consistency of age groups**,** Wrong numbers used from KPC, KPC actually collected % who received VA in 1999
2. Increase coverage of VA to post-partum women (1 mo.) from 0.7%(Y) and 2%(SC/BV) to 50% in both areas as verified on the health card.	**2.** Increase coverage of VA to **women with a child <2** who received post-partum VA (1 mo.) from 19%(Y) and 22%(SC/BV) to 50% in both areas **as reported by the mother**.	As the use of vitamin A is not recorded on the MOH Maternal Card the only way to measure this indicator is through self reporting
3. Increase % of pregnant mothers receiving iron tablets from 15.6%(Y) & 12.7%(SC/BV) to 50% as verified on health card.	**3.** Increase % of **women with a child <2 who** received iron tablets during pregnancy from 15.6%(Y) & 12.7%(SC/BV) to 50% as verified on health card.	
4. Increase % of children 6-24 months of age who consume vegetables rich in VA from: (a.) at least twice in 24 hours, 43% (Y) and 29% (SC/BV) to 70% (Y) and 60% (SC/BV). (b.) at least five times in 7 day period,	No Change	

43% (Y) and 48% (SC/BV) to 70% in both areas.		
Breastfeeding Intervention **1.** Increase exclusive breastfeeding from 43% (Y) and 17% SC/BV in children 0-6 months of age, to 70% (Y) and 50% (SC/BV).	**1.** Increase exclusive breastfeeding from 43% (Y) and 17% SC/BV in children **0-5** months of age, to 70% (Y) and 50% (SC/BV).	Consistency of age groups Target should be adjusted-too high (55/30)
2. Increase % of women continuing to breastfeed at 12-24 months from 40%(Y) and 40%(SC/BV) to 60% in both areas.	**2.** Increase % of women continuing to breastfeed at **18-23 months** from **38% in all area** to 60%.	Error in age group and transcription of information from the KPC
3. Increase % of children initiating breast-feeding immediately post-partum from 64% (Y) and 45% (SC/BV) to 80% (Y) and 65% (SC/BV).	**3.** Increase % of children initiating breast-feeding immediately post-partum **within 1 hour** from 64% (Y) and 45% (SC/BV) to 80% (Y) and 65% (SC/BV).	Define "immediately"
Diarrheal Disease Management **1.** Increase % children < 2 yrs. w/diarh. That receive more breastmilk from 24%(Y) & 16% (SC/BV) to 50% (Y) and 40% (SC/BV).	**1.** Increase % children < 2 yrs. with diarrhea that receive the **same or more** breastmilk from **93%(Y) & 91% (SC/BV)** to 50% (Y) and 40% (SC/BV).	Consider deleting this indicator as levels are already very high
2. Increase % of children < 2 yrs. W/diarh. that receive more food from 17% (Y) & 19% (SC/BV) to 40% in both areas.	**2.** Increase % of children < 2 yrs. with diarrhea that receive the **same or more** food from **73% (Y) & 75% (SC/BV)** to 40% in both areas.	Consider deleting this indicator as levels are already very high
3. Increase the % of mothers that give increased fluids from 39% (Y) & 44% (SC/BV) to 80% (both sites).	**3.** Increase the % of mothers that give the **same or more** fluids from **86% (Y) & 89% (SC/BV)** to 80% (both sites).	Consider deleting this indicator as levels are already very high
4. Increase use of ORT from 27%(Y) & 17%(SC/BV) to 60%(Y) and 50% (SC/BV).	**4.** Increase use of ORT from 27%(Y) & 17%(SC/BV) to 60%(Y) and 50% (SC/BV).	Define ORT (ORS and other fluids)
5. Increase % of mothers taking child to health facility for prolonged or bloody diarrhea from 56% (Y) 58% (SC/BV) to 80%.	**5.** Increase % of mothers taking child to health facility **(hospital, private clinic & health post)** for **diarrhea** from 56% (Y) 58% (SC/BV) to 80%.	The KPC only measures if a child has diarrhea, not the type of diarrhea Define "health facility"
6. Increase % of health workers accurately treating diarrhea from 30% (est.) to 60%.	**6.** Increase % of health workers treating diarrhea using **SCM** from 30% (est.) to 60%.	Define "accurately"
Pneumonia Intervention **1.** Increase the number of RPSs with a pharmacy kit with cotrimoxizole from 15 to 200.	Delete this Indicator	Not recommended to continue encouraging cotrimoxazole use until intervention strengthened
2. Increase % of mothers seeking care from a trained provider when child has signs of pneumonia from 44% (Y) and 47% (SC/BV) to 80%.	**2.** Increase % of mothers seeking care from a trained provider **(hospital & health post)** when child has signs of pneumonia from 44% (Y) and 47% (SC/BV) to 80%.	Define what is a trained provider. Collect KPC data on number which mentioned any of the defined providers
3. Increase % of health workers accurately treating pneumonia from 30% (est.) to 60%.	**3.** Increase % of health workers using **SCM** for treating pneumonia from 30% (est.) to 60%.	Define "accurately"

Cross-Cutting Indicators **1.** Increase the coverage of communities w/RPS from 40% to 80%.	**1.** Increase the coverage of communities with a RPS from **40% (70/175) to 80% (140/175).**	Define total number of communities as 175 with CEPAC working in 140 or them
2. 100% of CEPAC health and MOH counterparts trained in clinical IMCI.	**2. 90%** of CEPAC health and MOH counterparts trained in clinical IMCI.	Target too high, turnover should be taken into consideration
3. 100% of RPSs trained in community-level IMCI.	**3.** 90% of RPSs trained in **all four of the project interventions.**	The strategy for implementing IMCI at the community level has not been determined nationally. This should not impede training RPSs in the interventions
Capacity Building Indicators **1.** Advance CEPAC's abilities as measured by the 35 MSH management categories to the "mature stage" (3 in the "initial" stage, 22 in the "growth" stage).	**Capacity Building Indicators** **1.** Advance CEPAC's abilities as measured by the 35 MSH management categories to the "mature stage" (**Baseline:**3 in the "initial" stage, 22 in the "growth" stage).	
2. Improved financial systems in place: a. no cash shortages for monthly payments in one year period and, b. no duplicate entries between field and HQ.	No Change	
3. Implement QA system for continuous improvement and monitoring of CS project; at least 3 QA assessments completed by end of project.	No Change	
4. Increase the average number of visits made by a supervisor (MOH or CEPAC) from 2 per 6 months to 5 per 6 months.	**4.** Increase the average number of visits made by a supervisor (MOH or CEPAC) from 2 per year to 5 per year.	Error in setting the indicator in the DIP
5. CEPAC uses financial data in managerial and technical/CS decision-making.	Delete this Indicator	No instrument for measuring this indicator available
6. Improve CEPAC's ability to present information and proposals to donors as follows: a. CEPAC website in place b. At least one proposal submitted and accepted by new donor c. At least one partnership developed with private corporation that provides funding or in-kind assistance.	No Change	
Sustainability Indicator **1.** Percentage of operating costs recovered from user fees/micro enterprise or other resource-generating scheme increased from unknown to 30%.	No Change	

ATTACHMENT G:

Nutrition and Health Behaviors Survey

Ichilo Province
Santa Cruz, Bolivia
April 3- May 15 2000

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Acknowledgements
Many people were instrumental in making this survey happen and I would like to personally thank them. First-and-foremost, I would like to express my appreciation to Ms. Lily Riva Clement and Dr. Kerry Schulze who designed the survey and provided comments and suggestions throughout each phase of its implementation. Dr. Schulze, Bloomberg School of Public Health, also helped to analyze survey results. Helpful comments were provided by Dr. Michelle Dryfuss, specifically with regard to the parasite component of the survey.

Many thanks to *all* the members of CEPAC who participated in the survey. Thanks to Mr. Widen Abastaflor, Executive Director of CEPAC, as well as Dr. Oswaldo Chavez, CEPAC's Co-Director of Health, for their help in designing the questionnaire and their administrative support. A dept of gratitude is owed to Dr. Mabel Morales, CEPAC's Co-Director of Health. Without her this survey simply would not have been possible. Many thanks for the long hours and tremendous support that she provided. I would also like to thank Ms. Miriam Mullini, CEPAC Nutrition Coordinator, who was instrumental in training team members on the technical parts of anthropometry. Credit is also due to Ms. Femida Gutierrez, Buena Vista Area Supervisor, Ms. Rosemary Samacuir, Yapacani Area Supervisor, and Ms. Delia Llanos, San Carlos Area Supervisor, for their hard work in organizing and facilitating focus groups in each area. Finally, much appreciation is owed to Maritza Mendoza who offered invaluable secretarial support.

Thanks also to members from the International Eye Foundation that participated in the survey. Kirk Leach, Bolivia Project Advisor, and Alejandra Urioste, Project Assistant, supported team members by performing administrative tasks, making house visits, and reviewing questionnaires. John Barrows, Director of Programs, and Victoria Sheffield, Executive Director, also provided useful comments and suggestions during survey implementation.

Howard Jackson of Craft Technologies must be credited for his work in training team members in proper finger stick methodology and dried blood spot preparation. Mr. Jackson volunteered his time to travel to Santa Cruz and assist in team instruction.

Finally, much gratidude is owed to the team members who worked tirelessly to maintain a high standard of quality, especially when working conditions were challenging. They made the work enjoyable due to their sense of humor, dedication, and diligence. Thank you very much to German Zellada, Ambrocio Vallejos, Abraham Soliz, Claudia Ortiz, Irene Ticona, Justina Condori, Ramiro Ancase, Mery Elena Melean, and Luiz Rocha.

Executive Summary

IEF/CEPAC conducted a baseline nutritional survey in Ichilo Province, Santa Cruz, Bolivia. Preliminary qualitative work for the survey started in late March and suvey training took place in the first week of April. Survey implementation started the second week of April, and ended in mid May of 2001. In total 600 homes were visited, chosen at random from a 30-cluster sampling methodology. Taking five weeks to complete, the survey involved three teams of three people: a supervisor, an interviewer and a clinical person. Each team visited 20 homes per cluster. The purpose of the survey was to generate baseline data that will be used to develop an effective nutrition intervention as part of IEF/CEPAC's child survival project in Ichilo Province.

The survey had both qualitative and quantitative components. The quantitative component consisted of a biochemical analysis of mothers' hemoglobin concentration to detect iron deficiency anemia (IDA). Children under five were analyzed for IDA, vitamin A deficiency, and protein energy malnutrition (PEM). A Hemocue machine measured hemoglobin concentration, a dried bloodspot retinol indicator measured vitamin A deficiency, and anthropometric measurements (weight-for-height, weight-for-age, and height-for-age z-scores) measured PEM. A sub-sample of caretakers and children also gave feces samples to be analyzed for worm eggs, larvae, protozoan trophozoites, and cysts.

The qualitative component of the survey consisted of focus groups. The objective of the focus groups was to assess knowledge and beliefs about nutrition, understand health seeking and feeding behaviors around illness (particularly diarrhea and pneumonia), and to determine relevant family and community structures. Mothers (urban and rural), community health workers (RPSs), and health worker personnel (e.g. doctors, nurses, and other relevant health people) participated.

The following highlights, along with the rest of the survey results, will be used to design a nutrition intervention in Ichilo Province. The DBS methodology used made it difficult to precisely determine the degree and potential causes of VAD in Ichilo Province. Nonetheless, mean serum retinol concentrations are likely to fall between 19 and 22 mcg/dL, suggesting that regardless of DBS quality, nearly half the population is likely to fall close to or below the currently accepted cutoff for vitamin A sufficiency of 20 mcg/dL.

Parasites were very common among women and children: approximately 62% of children and 75% of mothers had one or more types of parasites. Among children, parasitic infection became more common with increasing age ($p< 0.001$). Children were more likely to have parasites if their mother did ($p = 0.03$). The degrees of trichuris (pinworm) and uncinarias (hookworm) burden were related to the iron status of anemic women (i.e. 40% of mothers). Pinworm prevalence was relatively rare, found in 6% of children and 7% of mothers. Hookworm, however, was found in 16% of children and 26.8% of mothers. These worms may be the most likely parasites to adversely affect iron status in both mothers and children.

Overall, 41.7% of children were anemic. In adjusted analyses, the odds of being anemic were approximately 1.5 times greater among boys compared to girls ($p < 0.05$), and anemia was a particular problem between 6 months and 3 and-a-half years of age. Using a field to defecate was highly predictive of anemia, with the odds of being anemic nearly 7 times greater among children who defecated outdoors compared to those who used a latrine ($p < 0.001$). Children whose families had animals available for both consumption and sale were half as likely to be anemic ($p = 0.005$). Stunting was also significantly related to the presence of anemia in children ($p=0.007$).

The majority of women, 88.8%, reported ever breastfeeding, with 59% reporting initiating breastfeeding within an hour of birth. Over 50% of women reported exclusively breastfeeding until between 3 and 6 months of age. The average age of weaning reported (question 51) was 14.6 ± 6.9 months, ranging from 0.2 to 51 months.

An examination of the distributions of the anthropometric measures shows that the majority of children had appropriate weight for age ($\geq$ -1 Z-score), although over 30% were underweight for their age (< -1 Z-score). The majority of children were short for their age but had appropriate weight given their height. As expected, wasting in the population was rare, but stunting was common. Age was a dramatic contributor to rates of stunting, and socioeconomic variables suggest that poverty may also impact stunting.

Introduction

The International Eye Foundation (IEF) is currently implementing a four-year child survival project in Ichilo Province, Santa Cruz, with its local Bolivian partner, el Centro de Promoción Agropecuaria Campesina (CEPAC). The overall goal of the project is to improve CEPAC's delivery of child survival interventions by improving coverage and quality of individual interventions. The project focuses on five interventions, namely EPI (Expanded Immunization Program), nutrition (including micronutrients and vitamin A), breastfeeding, diarrheal disease management, and pneumonia case management. Fifty percent of the project's effort is focused on the nutrition intervention (including breastfeeding and micronutrients), 20 percent on EPI, and 15 percent each to the diarrhea and pneumonia interventions.

As for the program location, Ichilo Province consists of three different areas: Buena Vista, Yapacani, and San Carlos. The total population is approximately 62,153 (based on 1997 PPD- Participatory Development Plan- figures and a 1.83% annual growth rate). A total of 210 communities exist in Ichilo Province: 110 in Yapacani; 55 in Buena Vista; and 45 in San Carlos. It is estimated that 9300 children under five years-of-age live within the three areas of Ichilo Province. The leading causes of death for these children are malnutrition, pneumonia, and diarrhea. Lack of proper nutrition is also associated with maternal death.[1] The current health system in the project area is facility-based with only limited outreach capabilities. CEPAC uses three mobile units for outreach and emergency transportation of seriously ill patients, each unit visiting one community per day. A nurse and two health workers staff the vehicles.

The purpose of conducting a nutrition survey in Ichilo Province was to assess levels of vitamin A (VA) and iron deficiency in mothers and children, as well as actual levels of malnutrition (Ministry of Health- MOH- data is inconsistent). In 1998, the MOH reported that 1231 of 2952 children (41.7%) under the age of two in Ichilo Province were moderately malnourished, or worse, based on weight-for-height. Other data from 1999, also obtained from the MOH, shows similar, although slightly better, measures of malnutrition. Overall, rates of malnutrition reported by MOH seem unreasonably high. According to DHS reports, the Department of Santa Cruz generally performs well with regard to nutritional status compared to other departments. Having malnutrition rates within Santa Cruz that are double those of other provinces therefore seems suspect. In short, current MOH data *may* overestimate the prevalence of malnutrition in some provinces.

Aside from malnutrition, iron and VA deficiency are severe problems in the project area. National data reports that about 50% of women have iron deficiency anemia. Oral reports from CEPAC at the writing of the DIP suggest that this figure was greater than 90% in rural areas and slightly lower in urban areas.

CEPAC reported that 100% of pregnant women in their target communities annually receive iron tablets, but the data is not distinguishable between pre and post-natal supplementation, nor is there information on compliance. Nightblindness has been anecdotally reported in the area, a strong indication that there is a severe VA problem, although no national or provincial data on vitamin A deficiency exists. According to the KPC, 63% of children less than two years old had eaten a VA rich food in the last 7 days in Ichilo Province. Only about 20% of children under two, however, had received a VA capsule in the six months prior to the KPC survey.

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[1] Academy for Educational Development: The Linkages Project. 2000. Maternal Nutrition: Issues and Interventions. AED,
Washington, DC; Pg. 5.

Nutrition

Good human nutrition is essential for a society's social and economic development, enabling the acquisition of human capital, technological advances, production expansion, and the ability to compete at an international level. Poor populations lacking access to good nutrition face serious developmental handicaps as malnutrition and disease are synergistic; the more malnourished a person is, the weaker is her immune system and the more susceptible to disease she will be. Disease often decreases appetite, hence nutrient intake, along with nutrient absorption and utilization. In short, malnutrition invites disease and disease reinforces malnutrition. Deficiencies in vitamin A, iron, and iodine are especially damaging, and are linked with high levels of infant mortality and/or crippling disabilities.[2] Low intake of essential nutrients and/or an inability to properly absorb nutrients are the principal cause of micronutrient deficiencies. A high incidence of measles, diarrhea, and parasitic infections, along with inadequate breastfeeding practices also contribute to widespread micronutrient deficiencies.

Macronutrient (protein, carbohydrate, fat) deficiencies are also a major problem in Latin America, including Bolivia. Protein deficiency, otherwise known as protein-energy malnutrition (PEM), is the most significant type of malnutrition and usually complements vitamin A deficiency disorders. PEM differs from micronutrient deficiencies as it often correlates with an overall inadequate food intake, rather than simply inadequate protein consumption. In Latin America, and other parts of the developing world, micro- and macronutrient deficiencies frequently complement each other. Protein is necessary for the manufacture of red blood cells and hemoglobin, vessels that transport oxygen within red blood cells. A lack of protein causes kwashiorkor, often characterized by edema, and nutritional marasmus, or severe physical wasting.[3] Both kwashiorkor and marasmus have high fatality rates. Protein deficiency, especially during the first few months of life, will also retard myelinization and brain maturation, adversely affecting intelligence and other cranial functions.[4] This results in a reduced ability to learn new concepts, solve problems, and think logically. If a diet rich in animal or fish proteins is prohibitively expensive for the poor, protein-rich foods of vegetable origin should be consumed. For example, the consumption of legumes such as groundnuts, beans and cowpeas, along with certain cereal proteins, will provide adequate amounts of protein, especially if eaten during the same meal.[5] Reducing PEM, especially in early childhood, not only helps to improve a society's human development, but also helps to save lives.

Vitamin A deficiency (VAD) also threatens the lives of many: approximately 250 million people worldwide. Preventing VAD would lower childhood mortality rates by up to 30 percent.[6] VAD is the primary cause of xerophthalmia, resulting in blindness, and it increases susceptibility to certain

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[2] Iodine deficiency was not studied in this survey due to the fact that iodine deficiency disorders (IDDs) do not present a severe threat to the health of Bolivians. This is largely due to efforts over the past ten years to iodize salt in Bolivia.

[3] Edema is a collection of water in the body from diseases that block the draining of extra cellular fluid. Kwashiorkor and wet beriberi are two major deficiency diseases that cause edema. Electrolyte disturbances may be the root cause of the excess water accumulation. A person can have edema and still be dehydrated (from diarrhea, for example). (FAO, 84)

[4] Montague, J. 1973. "Protein Deficiency in Early Life," JAMA. Vol. 3 (14); Pg. 1321.

[5] Food and Agriculture Organization (FAO) of the United Nations. 1997. Human Nutrition in the Developing World. FAO, Rome; Pg. 143.

[6] OMNI (Opportunities for Micronutrient Interventions). 1997. Micronutrient Malnutrition Facts: Technical Series. Fact Sheet 1. USAID/JSI (John Snow, Inc.), Washington, DC; Pg. 1.

cancers, parasitic diseases, and infectious diseases.[7] Measles, for example, will accelerate xerophthalmia due to the fact that it leads to a reduced consumption of food and a greater metabolic demand for vitamin A. Estimates suggest between 250,000 and 500,000 preschool children go blind each year due to poor intake and/or absorption of vitamin A. The prevalence of xerophthalmia in children is predominately among those living in impoverished conditions. It is highly unusual to find xerophthalmia among wealthy families, even in areas with a high incidence of the disease. Xerophthalmia is associated with low socio-economic status, female illiteracy, inequality, malnutrition, scarcity of land, lack of access to curative and preventive primary health care, and a high incidence of infectious and parasitic diseases (frequently caused by unsanitary living conditions).[8] It is also associated with protein-energy malnutrition (PEM). In Brazil alone, vitamin A deficiencies cost the economy an estimated US $23 million per year.[9] (Similar cost-analysis figures are not available for Bolivia.)

Sources of vitamin A include liver, fish-liver oils, egg yolks, dairy products, and carotene-rich fruits and vegetables. For the majority of poor people in Latin America and other developing countries, 80 percent or more of their intake of vitamin A comes from carotene in foods of vegetable origin.[10] Carotenes can be found in many green and yellow vegetables and fruits, as well as in yellow maize and yellow root crops, such as sweet potatoes. For a variety of market and cultural reasons, such vegetables are not frequently consumed in Bolivia.

Worldwide, iron deficiency anemia (IDA) affects 60 percent of women in non-industrialized countries, and 12-18 percent of women in North America, Europe, and Asia. IDA is the most widespread human nutritional problem in the world. Iron is essential for the construction of hemoglobin in red blood cells. A lack of iron results in the production of small, deformed cells with an abnormally low supply of hemoglobin. The clinical symptoms of IDA include fatigue, lethargy, breathlessness after modest activity, dizziness and/or headaches, palpitations with discomfort or unease, paleness of mucous membranes, and edema in certain cases.[11] The danger of premature birth, low birth weight, and maternal death for pregnant women greatly increases with IDA, resulting in as many as one in five maternal deaths.[12] In children and infants, IDA causes cognitive deficiencies and poorer learning abilities, along with behavioral abnormalities. In adults, IDA decreases the capacity for physical work and worsens appetite. According to USAID, IDA affects 26 percent of Latin Americans. The breakdown according to age group is as follows: 50 percent of 0-4 year-olds, 26 percent of 5-12 year-olds, 13 percent of men, and 32 percent of pregnant women.[13]

Iron deficiency is often the result of a lack of a sufficient quantity of iron in the diet, however some people suffer from anemia even though their intake is close to recommended allowances. This is due to the fact that human intestines absorb certain forms of iron better than others. People have the capacity to absorb only 10 percent of the total iron they ingest, which is complicated by the fact that

[7] Xerophthalmia, a consequence of VAD, consists of eye lesions and cornea ruptures, resulting in blindness.
[8] FAO, 170.
[9] UNICEF. 1998. Food Fortification in Brazil: Investing in Health and Nutrition. A discussion paper. Brasilia, Brazil; Pg. 2.
[10] IBID., 170.
[11] FAO., 151.
[12] IBID., 151.
[13] IBID., 147

the content of iron in foods varies greatly.[14] Traditionally, reliable dietary sources of iron include animal products consisting of haem iron (such as liver, red meat and blood products), and vegetable products composed of non-haem iron (such as pulses, dark green leafy vegetables, and millet). Iron absorption is either enhanced or hindered depending on the other nutrients in an individual's diet as well as his/her physical condition. For example, hookworm infections, very common in tropical climates such as Santa Cruz, Bolivia, impede iron absorption. Conversely, vitamin C enhances iron absorption. Overall, the likelihood of developing anemia revolves around the type and form of iron consumed, an individual's absorption ability, the quantity of iron losses, and general medical status.

Micronutrient deficiencies and malnutrition remain a problem in Bolivia. In relation to other departments within Bolivia, Santa Cruz has shown progress in an effort to lower malnutrition rates during the past ten years, particularly "global malnutrition" based on the weight-for-age indicator. In their annual micronutrient report (2000), however, the Ministry of Health suggests that national nutrition indicators, notably those of Santa Cruz, fail to capture what they call "hidden hunger." This is due to the following factors:

a. population increases
b. substantial migration of interior populations to Santa Cruz
c. pockets of poverty that have expanded in many zones and are already considered problematic
d. decreased employment opportunities, resulting in increased social depression
e. insufficient and inadequate nutrient intake, according to age and life stage
f. failure of health services to take and promote measures to prevent malnutrition
g. lack of compliance to recommended breastfeeding and complimentary feeding practices
h. micronutrient deficiencies (most notably vitamin A, iron, iodine, and others)
i. frequent infections, such as diarrhea and pneumonia
j. consumption of contaminated water

Migration is deemed as one of the most influential reasons for shifting nutrition indicators. In the department as a whole, malnutrition rates have remained somewhat constant, however specific areas have shown dramatic changes. Looking specifically at Ichilo Province, MOH data demonstrates that moderate malnutrition rates (-2 Standard Deviations) have increased among children less than 5 years-of-age in rural areas, rising from 5.28% in 1997 to 6.21% in 2000. It is highly probable that many of the factors listed above are responsible for this change.

Survey Methodology

The first step undertaken in the survey consisted of conducting 12 focus groups. Four focus groups were held in each area- Yapacani, San Carlos, and Buena Vista. Health workers, rural mothers, urban mothers, and health center personnel, respectively, participated. Approximately 7-10 people took part in each group. The purpose of the focus groups was to explore knowledge/beliefs about social structure and child feeding practices. More specifically, the lines of communication in communities, as well as within families, were investigated. Within families, questions such as who filled the 'head of the household' and primary childcare provider roles, as well as how many children under five years-of-age were addressed. Community concerns about nutritional status, health priorities, as well as knowledge of nutritional status were also assessed.

[14] IBID., 151.

Focus group participants were asked about vitamin A deficiency, specifically to define it, to describe any community members who might have it (particularly those with nightblindness), as well as identify any women who had nightblindness during pregnancy. A local term for nightblindness was sought, however none exists in Santa Cruz. Questions also focused on breastfeeding practices, weaning, and complimentary feeding. Food prohibitions/taboos were discussed, especially during pregnancy, lactation, and illness. Current dietary practices were also explored, such as the number of meals children eat per day, the definition of a snack vs. a meal, and how many snacks are consumed on a daily basis. Decision-making about food purchases and food preparation were also considered.

Focus groups also discussed the relationship between diet and age. In other words, participants were asked to describe what were appropriate meals for infants, toddlers, preschool age children, pregnant women, lactating mothers, non-lactating mothers, and non-pregnant women. They were also asked to describe problems encountered when feeding children, whether or not they encourage their children to eat, and how they would rate the overall appetite of child. Food-specific questions focused on the access and consumption patterns of foods rich in protein, vitamin A, and iron. The seasonal availability of foods was also addressed, as was the question of how and where foods were acquired. Participants were also asked to identify and describe "special foods" that relate to illness, holidays, etc. Participants shared their knowledge of vitamins/supplements and how they identified nutritional deficiencies. Parasites (definition, identification, etc.) were also discussed, as were health-seeking behavior and basic hygiene/sanitation practices.

Focus group guides and questions were developed in an effort to generate the information necessary to design a questionnaire for caretakers of children under five years-of-age. The questionnaire was written in Spanish and revised upon receiving reviewer comments. It included many questions that were similar to those in the focus groups, but also incorporated more caretaker, current child health, and socio-economic questions. It also had more specific questions about the types of vitamin A and iron rich foods consumed by the child on a daily basis. On average, each household visit lasted 40 minutes: 20 minutes to complete the questionnaire and 20 minutes to complete the clinical/anthropometric work.

Sample size calculations demonstrated that to achieve vitamin A and iron deficiency results within a 6% precision rate, 600 households would have to be visited. Thus, thirty clusters of 20 households were randomly chosen through a series of steps. First, the total number of inhabitants in the survey area was divided by the selected number of clusters (i.e. 30), and the mean number of inhabitants calculated. Reading the last four digits of a serial number from a Bolivian dollar bill provided a random number below the calculated mean. Adding this number to the mean generated a series of thirty random numbers. The communities to be surveyed were then identified by matching the random numbers with the cumulative population. In other words, random numbers were matched with communities that had an equal or lesser number of inhabitants. Identifying households in the communities also followed a random methodology. Arriving at a community, team members located the center of the town and spun a bottle to ascertain in which direction they should proceed. They then advanced to the first house they came across and asked whether children under five years-of-age lived there. If children under five were present, they conducted the survey. They then proceeded to the next closest house and began anew. In households with more than one child under five years-of-age, the team assigned the children numbers and randomly selected one. If more than one family lived in the same house and ate from the same kitchen, one family was selected at

random. However, if each family separately prepared and ate their food, the team invited each to participate.

The three survey teams consisted of three individuals: a supervisor, an interviewer, and a clinical person. The team members were recruited by word-of-mouth through CEPAC staff in Yapacani, Buena Vista, and San Carlos. They were interviewed by CEPAC's Director of Health, Dr. Oswaldo Chavez, and IEF's Child Survival Coordinator and Nutrition Survey Director, Gwen O'Donnell. Five men and four women were hired based on their qualifications including, health or health-related experience, Quechua-speaking ability, clinical skills, previous survey experience, level of education, and personal/professional recommendations. Each individual received training for the supervisor, interviewer, and clinical positions to ensure quality control and crisis management systems within each survey team. The training relied on significant individual participation and lasted five days. Core issues covered in the training included the importance of vitamin A and iron, the consequences of vitamin A and iron deficiency, the survey methodology & protocol, the questionnaire, team member roles & responsibilities, and how to properly take anthropometric measurements, do finger pricks, use a hemocue machine, and prepare dried blood spots. The Nutrition Survey Director conducted the training with help from certain CEPAC staff, namely Dr. Mabel Morales, Ms. Miriam Milluni, and Ms. Femida Gutierrez. Additionally, Mr. Howard Jackson of Craft Technologies traveled to Bolivia to participate in two days of the training, namely how to properly do finger pricks and prepare dried blood spots.

During the training, team members reviewed the questionnaire in detail to ensure that they understood exactly what was being asked and the data that they needed to collect. Survey questions included topics such as socio-economic status, basic sanitary/hygiene practices, child feeding patterns, current status of child health, mothers' knowledge of vitamin A and iron, mothers' and childrens' eye problems, and others (refer to appendix 3). A simple consumption frequency of vitamin A and iron-rich foods was also included, relying on three different serving bowls. If a caretaker responded that her child had eaten mango in the last week, for example, she was asked to indicate what size portion the child had eaten, as well as how many days the child had eaten it.

Training on anthropomentric measurements started with a review of the significance and importance of height-for-age, weight-for-height, and weight-for-age, as well as mid upper arm circumference (MUAC) measurements. A practicum ensued starting with a demonstration of how to use the model 881 scale. Purchased from Shorr Productions, the scale was designed for fieldwork, specifically for facilitating the weighing of young children and infants. A mother stands on the scale and her infant is passed to her. With the press of a button, the scale automatically subtracts the weight of the mother, leaving the child's weight on the display. Team members then practiced using Shorr Boards to measure children's height or recumbent length. Following the standard protocol, children less than one year of age were measured laying down (i.e. recumbent length), whereas children 1-5 years-of-age were measured standing up. Team members also practiced taking MUAC measurements after a demonstration, following the standard protocol. Two team members measured an arm from the top of the shoulder to the elbow to find the midpoint, marked the midpoint, and then measured and recorded the arm cirucumference using a MUAC tape. The measurement was then repeated to ensure accuracy and precision. For each measurement in fact (weight, height, MUAC), two separate readings were taken to ensure accuracy and precision.

Dickenson lancets were used to perform the fingerpricks. These lancets were chosen because they are believed to be the least painful, and they decrease the "scare factor" due to the fact that the

needle is hidden in the lancet. Team members practiced on each other after several demonstrations on proper finger-sticking technique. The first step was to have the patient shake their hands and/or do large extended arm circles to increase blood circulation to the hand. The clinical person then made sure that the patient was sitting comfortably and that the hand was warm and relaxed. Wearing gloves, the clinical person massaged the hand gently, pushing blood into the middle finger with downward strokes. Using his/her thumb, he/she lightly pressed the finger from the top of the knuckle to the tip, further stimulating blood flow. He/she then cleaned the finger with alcohol and dried it. After gently pricking the side of the fingertip, the clinical person wiped away the first two drops of blood. By capillary action, a hemocue cuvette then sucked up *one* large drop of blood. Any excess blood was wiped off the cuvette and it was inserted into the portable Hemocue machine to measure hemoglobin concentration. It took approximately 20 seconds for results of hemoglobin concentration to appear on the display. The supervisor had the responsibility to record the readings of both the child and the mother on the questionnaire, a measurement summary form, and a pamphlet with vitamin A, iron, and nutrition information. The latter was left with the mother. The significance of iron deficiency was explained to the mothers, as was the information provided in the pamphlet. In cases of severe anemia, team members instructed mothers to immediately take themselves and/or their children to the nearest health center.

Immediately after taking the drop of blood for the Hemocue, the clinical person made dried blood spots (DBS) to measure vitamin A deficiency in children. Depending on the child's blood flow, as many circles as possible on the fiter paper were filled with one drop of blood each. The cards were then put into a box and left to dry for 12 hours. Once dry, the cards were placed into ziplock bags with a desicant and stored in a freezer at –25 degrees Celcius. In order to validate the DBS, a random sample of 50 capillary blood draws were taken (in most cases from the same fingerprick). After making the DBS, the clinical person let at least four drops of blood flow into a microtube. The microtube was then transported to the clinic in Yapacani where it was immediately put into dry ice. Both DBS cards and microtubes were transported on dry ice back to the United States at the end of the survey. They will be analyzed by Craft Technologies in North Carolina.

Feces samples were taken from a subsample of 120 mothers and their children. The samples were transported back to the lab on ice and analyzed by CEPAC's lab technician. He followed a wet mount protocol, using a saline drop in the left half side of the slide and an iodine drop in the right half of the slide. Using an applicator stick, a small portion of the specimen was then added to each drop. The technician then systematically analyzed the slide under a microscope starting with x10 power, (and using x20 and x30 power, if necessary). Any worm eggs, larvae, protozoan trophozoites, cysts, abnormal white blood cells, or fungus identified were recorded by the technician. One of the CEPAC physicians then made a diagnosis and gave the pharmacy a prescription. The teams then returned back to each house with results, delivering drugs to those mothers and children that needed them. Caretakers were also given a brochure illustrating different kinds of parasites and were shown which type they and their children had.

The survey took five weeks to complete, starting April 3rd and ending May 15th. Obstacles encountered during survey implementation included periodic heavy rainfall that impeded teams' ability to cross rivers- due to flooding- and reach isolated communities. Nevertheless, schedules were changed accordingly to ensure that all communities were reached and that data quality was not compromised. To maintain high data quality, the supervisors read each survey immediately after it was completed. If the supervisor found mistakes, it was his/her responsibility to notify the team and request that they return to the house, if necessary, to correct the mistakes and/or missing

information. Supervisors were also responsible for going through a checklist of essential 'checks and balances' each day before leaving (refer to appendix 9). When taking measurements, at least two team members, if not three, were required to participate in order to avoid measurement and/or data recording errors. Measurements were also recorded on two separate forms in the event that one be damaged or lost. Finally, the Nutrition Survey Director reviewed each questionnaire on a daily basis to monitor team progress, and make certain that supervisors did not overlook any errors. Once the surveys had passed a 'second check,' they were turned over to the data entry person who entered the forms into an EPI Info database.

Results

Statistical Analysis

A variety of univariate and multivariate methods were used to elucidate relationships among variables of interest:

- Frequencies of categorical variables and means and SD of continuous variables
- Chi-squared analysis to look for statistically significant relationships among variables, which could be further explored using more complex analyses
- T-tests, ANOVA (or regression equivalent) or multiple linear regression to look for relationships of continuous outcomes to categorical or continuous variables, respectively
- Multiple linear regression or logistic regression to control for multiple variables when the outcome variable was continuous or categorical, respectively
- Sensitivity and specificity analysis of DBS relative to serum retinol data

Background Information

Six hundred children and their caretakers participated in the survey. Of the 600, 48% were female while 53% were male. Of the caretakers, 96% were the child's mother, 2.7% were the child's grandmother, 0.5% were the child's sibling, and 0.5% were identified in the "other" category (2 adopted mothers, and 1 father). The most frequent age group (24%) encountered was children 12-24 months of age, followed by 24-36 months of age (21%), 36-48 months of age (21%), 48-60 months of age (18%), 6-12 months of age (9%), 1-6 months of age (6%), and less than one month (0.8%).

The majority of children had a health card (65%). Approximately 85% of those with a card had not experienced growth faltering (according to the card), while 13% had experienced growth faltering (note: 2% lacked control of any kind). Most families (57%) had electricity in their homes, as well as a radio (64%) and a television (57%). Of the 251 families (46%) who had a garden, 92% had a fruit garden, 7% a vegetable garden, and 1% both fruit and vegetable. In 506 families (84%), the father supported the family by working an 8-12 hour workday. Half of the families visited owned their own land, and 75% owned their own animals. Of those families that owned animals, 69% reported consuming the products of those animals domestically. The majority of homes (84%) visited had a direct source water in the home, while the rest have less than a kilometer to walk to access water. The majority (77%) had a traditional latrine. In the households surveyed, mothers purchased foodstuffs for the house 68% of the time and prepared it 89% of the time.

In terms of personal caretaker characteristics, 60% (358) were in "open" relationships (that is, living together with their partner but not married), while 30% were married. More than half of the caretakers interviewed had five years or less of formal education. Fifty-nine percent knew how to read, 19% were illiterate, and 22% read only at a very basic level.

Health Knowledge and Care-Seeking Behavior

In terms of child health, 66% of mothers reported that their child was currently well at the time of the survey, 33% reported their child to be sick, and 2% did not know the health of their child. In the two weeks prior to the survey, 61% of children who participated in the survey had had diarrhea, 57% had had some form of a respiratory infection, and 65% had experienced a fever. Approximately 60% of mothers responded that they did not seek help when their child had diarrhea or acute respiratory infections (60% and 63%, respectively). In contrast, 65% of mothers responded seeking help for episodes of fever. Approximately 67% of mothers knew what parasites were and 68% percent claimed that their child had been treated for parasites.

As far as vitamin A and iron knowledge, 81% of mothers reported knowing what iron sulfate tablets were but that they had never taken them. Approximately 80% of mothers recognized vitamin A tablets, but only 41% reported having taken vitamin A before, 57% reported never taking it, and 2% were not sure. With regard to eye problems, the majority of mothers reported not having trouble seeing in the day or at night (84% and 86% respectfully), nor did the majority of children have trouble seeing during the day or night (97% and 99%, respectfully). (This result was somewhat surprising due to the fact that there was anecodotal evidence of nightblindness in the area prior to the survey.) Finally, the majority of mothers (84%) reported not having difficulty with their eyesight in the final trimester of their pregnancy. (We ruled out that the remaining 16% had nightblindness due to the high numbers of women who had eye sight problems in both the day and night.)

Breastfeeding Characteristics

Depending on how the question was worded (question 48 or 49), 96.3% or 88.8% of women reported ever breastfeeding. One hundred seventy eight of the 600 respondents (29.67%) reported currently breastfeeding. Children currently breastfed ranged in age from 0.02-3.32 years of age (1.07 $\pm$ 0.65 years) [or 0.24 – 39.8 months (12.8 $\pm$ 7.8 months)]. Of 36 children currently being exclusively breastfed, the mean age was 0.45 $\pm$ 0.6 years (5.4 $\pm$ 7.2 mo.), with a median of 0.28 years (3.4 mo.).

The majority of women (59%) reported initiating breastfeeding within an hour of birth. Over 50% of women reported exclusively breastfeeding until between 3 and 6 months of age. Specifically, the frequencies associated with the duration of exclusive breastfeeding are as follows: less than one month, 7.3%; 1-2 months, 2.2%; 2-3 months, 5.0%, 3-4 months, 12.3%; 4-5 months, 18.5%; 5-6 months, 24.0%; over 6 months, 12.8%. (Six percent reported currently exclusively breastfeeding, as detailed above.)

When asked when other liquids were added to the child's diet (question 53), 4% of respondents reported not having added other liquids yet. Twenty-eight percent reported adding other liquids prior to 4 months of age; 35% reported adding liquids at 4-6 months; and 30% reported adding liquids from 6-12 months. Fewer than 3% of respondents reported adding liquids after one year, or did not know when liquids were added. Of 877 reports of liquids added to the diets of breastfeeding babies (question 54), soups were most commonly added (299 responses), followed by tea (146 responses), water (131 responses), formula (122 responses), and juice (106 responses). When asked if formula was given (question 55), 57% of all respondents reported ever giving formula. This shows that while the majority of women reported giving formula, it was not the most common liquid offered to children. Of 385 responses as to why formula was given (question 56), the most common response was that the child was not satisfied with breastmilk (114 responses), or that the mother lacked sufficient breastmilk (92 responses).

Among women whose children were eating solid foods (question 39), 50.1% (283/556) reported adding solids to the diet between 6-12 mo; 32.3% (180/556) reported adding solids to the diet between 5-6 months; 16% (89/556) began adding solids prior to 5 months of age.

The average age of weaning reported (question 51) was 14.6 $\pm$ 6.9 months, ranging from 0.2 to 51 months. A variety of responses were offered as to why breastfeeding was stopped (question 52). Of 454 responses, the most common (157/454, 35%) was that the child was getting big. Sixty-four of 454 (14%) women reported a subsequent pregnancy. The child rejecting the breast (11%), mother's work (9%), insufficient milk (6%), illness of the child (6%), or illness of the mother (6%) were also cited.

Anthropometric Assessment of Children

Table 1 shows summary data from 596 children. Children with height-for-age or weight-for-height Z-scores beyond 5 standard deviations from the mean were removed from the analyses due to the probability that their measures were done or reported incorrectly. Weight-for-age is the least specific measure of undernutrition, as it does not distinguish the contributions of stunting (height-for-age < -2 Z-scores) or wasting (weight-for-height < -2 Z-scores) to underweight. An examination of the distributions of the anthropometric measures shows that the majority of children had appropriate weight for age ($\geq$ -1 Z-score), although over 30% were underweight for their age (< -1 Z-score). The majority of children were short for their age but had appropriate weight given their height. As expected, wasting in the population was rare, but stunting was common. Analyses from this point on examine predictors of stunting in this population.

Table 1. Anthropometric Indices of Children in Ichilo Province, Bolivia

	Weight for Age	Height for Age	Weight for Height
Mean Z-score (SD)	-0.48 $\pm$ 1.14	-1.12 $\pm$ 1.27	0.26 $\pm$ 0.98
p $\geq$ 1 Z (%)	10.1	5.37	21.3
-1 $\leq$ p < 1 Z	56.9	38.8	69.8
-2 $\leq$ p < –1 Z	26.5	33.4	7.7
< -2 Z	6.5	22.5	1.17

Age was a dramatic contributor to rates of stunting. Table 2 shows rates of stunting associated with 6-month age intervals. Rates of stunting increased from 12-18 months, peaked at 18-24 months, and plateaued beyond 24 months. Odds of being stunted were nearly 13 times greater for children in the second year compared to the first, and 10 times greater for children beyond the second year compared to the first year of life.

Table 2. Relationship of age to stunting in children 0-60 months of age

	Age in Months									
	0-6	6-12	12-18	18-24	24-30	30-36	36-42	42-48	48-54	54-60
n	42	53	61	86	70	54	70	53	52	55
stunted (%)	0	5.7	21.3	34.9	18.6	29.6	18.6	26.4	30.8	29.1

In unadjusted analyses, other variables that predicted stunting included some related to socioeconomic status, such as lack of electricity ($p < 0.023$), lack of a radio ($p < 0.026$), and lack of a television ($p < 0.007$). Stunting is classically related to poverty, so these variables may imply that these families were relatively more impoverished. Maternal characteristics also predicted stunting in unadjusted analyses: children of widowed or single mothers were more likely to be stunted than

children with a mother and father (30% versus 21%, $p < 0.051$). Mothers of stunted children were older (31.6 $\pm$ 9.9 versus 27.9 $\pm$ 8.0 years, $p < 0.001$), and had fewer years of education (4.0 $\pm$ 3.3 versus 5.4 $\pm$ 3.5 years). Stunting was also related to the mother's ability to read. Literate mothers had less than a 50% chance of having a stunted child (57 of 350 children stunted). Illiterate mothers, on the other hand, had a higher risk of stunting (40/115 stunted), while those with some reading ability had an intermediary risk of stunting (37/131 stunted). There was also some suggestion that the time at which solid foods was introduced may have impacted risk of stunting, with 34% of children who were given foods prior to 6 months stunted versus 26% in children given solid foods later ($p < 0.011$). This finding does not make intuitive sense, but may suggest that starting solid foods too late may put children at risk of undernutrition as breastmilk becomes insufficient to meet nutritional needs. Regardless, this finding was not important in the adjusted analyses.

In adjusted analyses, the age of the infant was the strongest predictor of stunting. The odds of being stunted were more than 11 times greater in the second than the first year of life ($p < .001$), and more than 8 times greater in the third than first year of life ($p = 0.001$). Single mothers were more than 2.5 times likely to have a stunted child ($p = 0.02$), as were older mothers, with a 3% increase in the odds of stunting for each additional year of maternal age ($p = 0.02$). Among these respondents, younger women were more likely to be able to read ($p < 0.001$) and were more educated than older women ($p < 0.001$), but these variables themselves were not significant in the adjusted analyses. Younger maternal age may also be a proxy for reduced parity, in other words older mothers have more children, increasing the risk of stunting among siblings.

Iron Status of Children

Anemia was defined as hemoglobin concentrations under 10.5 g/dL in children up to 1 year of age and under 11.0 g/dL in children 1-5 years of age. It should be remembered that early infancy is a time of dramatic change in hemopoietic indicators, so that hemoglobin concentrations are difficult to interpret in children under 6 months of age. Also, children under 6 months of age are not generally considered to be at risk of anemia, as they typically have sufficient iron stores from the third trimester of gestation.

Overall, 41.7% of children were anemic (95% CI 37.7 - 45.6%). Table 3 shows the proportion of children considered anemic by age, as well as the odds of being anemic compared to the 0-6 month old reference group. Clearly, this problem was most severe in late infancy and persisted into the preschool years.

Table 3. Proportion of anemic children and odds of being anemic by 6-month age intervals

	Age in Months									
	0-6	6-12	12-18	18-24	24-30	30-36	36-42	42-48	48-54	54-60
n	42	54	62	86	71	54	71	53	52	55
anemic (%)	11.9	63.0	72.5	61.6	43.7	40.7	35.2	24.5	21.2	22.0
OR		12.6	19.6	11.9	5.7	5.1	4.0	2.4	2.0	1.8
p-value		<.01	<.01	<.01	<.01	<.01	.01	.13	.24	.29

In unadjusted analyses, anemia in children seemed less likely to occur among mothers who worked less than 8 hours per day compared to those who worked 8-12 hours ($p = 0.04$). Anemia was also less likely among those who did not defecate in a field ($p = 0.009$), and among those who

reported using animal products for both sale and eating ($p = 0.049$). Contrary to the findings in stunting, mothers of anemic children were younger than those of children who did not have anemia (27.0 ± 7.2 versus 29.9 ± 9.8 years, $p < 0.001$). However, as in the case of mothers of stunted children, mothers of anemic children were not as well educated (4.7 ± 3.2 versus 5.4 ± 3.7 years of schooling, $p < 0.02$). Also unlike the case of stunting, a higher risk of anemia was found among children who were introduced to solid foods later, with significantly greater odds of stunting in children introduced to solid foods at any time beyond 3 months ($p < 0.001$). Anemia was also more common in children who reportedly had diarrhea within the last 2 weeks (49.6% anemic with diarrhea versus 36.5% anemic without, $p = 0.002$), and was more common among those children in whom fever was reported (49.1% anemic of those with fever versus 37.6% without, $p = 0.007$). Finally, stunting was also significantly related to the presence of anemia in children ($p = 0.007$).

In adjusted analyses, the odds of being anemic were approximately 1.5 times greater among boys compared to girls ($p < 0.05$), and anemia was a particular problem between 6 months and 3 and-a-half years of age. Using a field to defecate was highly predictive of anemia, with the odds of being anemic nearly 7 times greater among children who defecated outdoors compared to those who used a latrine ($p < 0.001$). Children whose families had animals available for both consumption and sale were half as likely to be anemic ($p = 0.005$). Increasing maternal age and education also made anemia in children approximately 10% less likely ($p < 0.001$ for both variables). Finally, the presence of fever made anemia approximately 1.6 times more likely ($p = 0.05$).

Despite the fact that anemia was associated with the use of a field for defecation, no association existed between the presence or degree of any of the measured parasitic infections and anemia. A relatively small sample size in the substudy, with over 20% of the group at low risk for any parasitic infection due to their age, may have precluded us from finding any such association.

Maternal Iron Status

A cut-off of 12 g/dL was used to describe anemia among women in the population. Hemoglobin concentrations averaged 12.2 ± 1.7 g/dL, and 40.0% of women were considered anemic (95% CI 36.1 - 44.0%).

In univariate analyses, education and the ability to read had a significant impact on anemia. Women who were anemic had fewer years of education than those who were not anemic (4.64 ± 3.6 vs 5.4 ± 3.5 years, $p = < 0.001$). The ability to read also decreased the likelihood of anemia ($p = 0.038$). However, in adjusted analyses, only the location of the bathroom had a nearly significant impact on maternal iron status, with women who used a field being twice as likely to have anemia ($p = 0.066$).

This surprising finding suggests that helminth burden may contribute substantially to anemia among women. However, among women in whom helminths were assessed, only trichuris (pinworm) and the degree of uncinarias (hookworm) burden were related to iron status. Pinworm prevalence was relatively rare, found in 6% of children and 7% of mothers. Hookworm, however, was found in 16% of children and 26.8% of mothers. These parasites may be the most likely parasites to adversely affect iron status in both mothers and children.

Vitamin A Status of Children

a. Validation of DBS retinol

Six hundred dried blood spot (DBS) samples were collected in the survey. A subsample of 44 children was randomly choosen to provide a capillary serum sample (i.e. several drops of blood in a microtube) along with the DBS, in order to establish a validation group for the DBS samples. Dr. Neal Craft prepared a report examining the relationship between the retinol assessed in the 600 DBS and the capillary serum samples. (Refer to Appendix 9 for the report.) Among the 44 children who provided capillary serum samples, mean retinol values were 19.77 ± 5.9 mcg/dL, ranging from 8 -

33.9 mcg/dL. Mean retinol values in DBS samples from these children were 22.6 $\pm$ 7.4 mcg/dL, ranging from 7.6 - 40.2 mcg/dL. Although these values seemed quite comparable, they were in fact statistically significantly different ($p = 0.05$). Although mean retinol was higher in the DBS samples, fewer individuals were identified as vitamin A deficient (VAD) using a cutoff of 20 mcg/dL, suggesting the misclassification of individuals in the DBS relative to the serum analyses. (Comparing the DBS to serum samples should have provided equivalent information.) Among the validation group, the sensitivity for identifying VAD by DBS was 66.7%, and the specificity was 75%. Approximately 70.5% of DBS cards were correctly classified, using serum as the gold standard, while 25% had defects of some sort. Of the remaining 556 population DBS cards, 41.5% were identified as defective in some way ($p = 0.03$).

To determine whether the DBS serum values obtained were likely to be substantially different in the entire population versus the subsample (i.e. the validation group), comparisons were made on a variety of attributes between the subsample and the rest of the population. Differences were minor and may have been spurious. The presence of electricity and radios were more common in homes of children in the subsample ($p = 0.06$ for both variables), but there was no difference in the presence of televisions. A higher proportion of individuals in the validation group obtained water in their home ($p = 0.04$). However, the validation group was less likely to own their own land ($p = 0.001$). Finally, children in the validation group had somewhat greater weight-for-height Z-scores (0.57 $\pm$ 1.05 versus 0.26 $\pm$ 1.06, $p = 0.06$). Overall, these analyses suggest that children in the validation subsample may have been somewhat better off than the average child in the population. A slight difference between the two groups, however, would not suggest that serum retinol status would be substantially better or worse between the two groups. Therefore, we would expect serum retinol concentrations in the entire population to fall close to 22 mcg/dL. This is very close to the cutoff for vitamin A deficiency of 20 mcg/dL. If more than 40% of a population is classified below 20 mcg/dL, the locale is considered to have a significant VAD public health problem.

b. Impact of Defective DBS cards

Mean retinol was 21.3 $\pm$ 0.08 mcg/dL, but it was significantly lower among children with defective DBS compared to those whose DBS were of adequate quality (19.0 $\pm$ 8.0 versus 22.9 $\pm$ 8.2 mcg/dL, $p < 0.001$). Without considering DBS quality, 51.7% (95% CI 47.6 - 55.7%) of individuals had retinol concentrations below 20 mcg/dL (VAD); however subjects were more likely to be classified as VAD if their DBS was defective than of adequate quality (63% versus 44%, $p < 0.001$). Ninety-five percent confidence intervals for these estimates are 56.4 - 68.9% and 38.9 - 49.4%, respectively. An alternative definition of VAD as a public health problem is when more than 5% of individuals have retinol concentrations below 10 mcg/dL. Our sample was not large enough to be able to use this criteria with sufficient precision. However, in total in this population 4.5% of children (95% CI 3-6.5%) had retinol below 10 mcg/dL; of these 74% (20/27) of DBS samples were defective. Thus, it appears that if the defective DBS cards are eliminated from the analyses, VAD as a public health problem based on current criteria cannot with certainty be identified in this population. The mean retinol concentration and the proportion of vitamin A deficient individuals with adequate DBS cards suggests the population is borderline and at risk of VAD.

Because DBS cards were more likely to be defective in the entire study group than among the validation subsample, we sought to determine whether there were any characteristics of the population that predisposed to defective DBS cards. Children with defective DBS cards were:

- younger (2.25 $\pm$ 1.26 versus 2.67 $\pm$ 1.38 years old, $p = 0.0002$);
- less likely to have electricity ($p < 0.001$) and television ($p = 0.012$);

- more likely to defecate outdoors ($p < 0.001$);
- more likely to have to leave the home to obtain water ($p = 0.01$);
- more likely to rent land ($p = 0.01$);
- less likely to have mothers who could read ($p = 0.05$);
- less likely to have mothers that did the shopping ($p = 0.07$);
- less likely to be served first at the table ($p = 0.018$);
- more likely to be anemic ($p < 0.001$);
- and had somewhat lower weight-for-age Z-scores (-0.58 ± 1.11 versus -0.39 ± 1.29, $p = 0.07$).

Factors such as lower age, poorer hygienic conditions, and the presence of anemia suggest that DBS may have been more difficult to obtain in the group with defective DBS. However, all of these factors may also be predictive of a greater probability of *true VAD*. All analyses designed to determine predictors of VAD controlled for DBS quality. This was done in an attempt to distinguish whether defective DBS samples resulted from conditions that caused VAD deficiency, or whether the samples were more likely to classify individuals as VA deficient. Because of the difficulty in distinguishing between factors that hampered adequate DBS collection, true VAD, as well as the degree of misclassification of VAD in the validation substudy, it can be concluded that the DBS methodology did not perform reliably in this setting. This is true despite vigorous efforts of quality control and appropriate sample collection.

c. Factors Related to VAD

In keeping with the previous analyses, Table 4 shows the proportion of children considered VAD by age, as well as the odds of being VAD after controlling for the quality of the DBS samples. Low retinol was most likely to be seen in the youngest age group. The odds of being VAD decreased by more than half for children 30-36 months. In other words, retinol levels did not significantly improve until children were between 30-36 months of age.

Table 4. Proportion of VAD deficient children and odds of being VAD by 6 month age intervals After Adjusting for Presence of DBS Defects.

	Age in Months									
	0-6	6-12	12-18	18-24	24-30	30-36	36-42	42-48	48-54	54-60
n	42	54	62	86	71	54	71	53	52	55
VAD (%)	64.3	61.1	53.2	54.7	62.0	44.4	43.7	37.7	44.2	50.9
OR*		.73	.57	.60	.85	.44	.40	.34	.47	.59
p-value		0.5	0.2	0.2	0.7	.05	.03	.012	.08	.22

Because of the overwhelming impact of DBS defects, which doubled the odds of being considered VAD ($p < 0.001$), few other variables emerged as important predictors of VAD. (This lack of association may also be compounded by potential misclassification of true VA deficient individuals.) In adjusted analyses, age of the child became unimportant. Additionally, the odds of becoming VAD reduced when animals were used for food and/or sale ($p = 0.02$), and when the child ate dinner with both parents ($p = 0.004$) or a caretaker ($p = 0.027$) versus eating with his/her mother.

d. VAD: Summary and Interpretation

The DBS methodology used in this study made it difficult to precisely determine the degree and potential causes of VAD in this population. Nonetheless, mean serum retinol concentrations are likely to fall between 19 and 22 mcg/dL, suggesting that regardless of DBS quality, nearly half

the population is likely to fall close to or below the currently accepted cutoff for vitamin A sufficiency of 20 mcg/dL. Populations with less severe vitamin A deficiency in Guatemalaand the Philippines (2) have shown dramatic improvements in serum retinol concentrations as a consequence of sugar and margarine vitamin A fortification programs. [15,16] Therefore, this population of children is likely to benefit from an intervention that includes enhancing vitamin A intake. Possible food-based interventions palatable in this population will require further analysis of the food frequency data.

Parasitic Infections

Parasites were very common among women and children, as summarized in Table 5. Among children, parasitic infection became more common with increasing age ($p < 0.001$; Table 6). Children were more likely to have parasites if their mother did ($p = 0.03$). Among 88 women with helminth infections, 64 of their children also had parasites, while 24 did not. Among 31 women without parasites, 16 of their children had parasites, while 15 did not.

Table 5. Prevalence of Parasitic Infections Among Children and their Mothers.

	Children	Mothers
Any Parasitic Infection	62.1%	74.8%
Specific Parasites		
Ascaris lumbricodes	29.8%	30.1
Amoeba histolitica	6.9%	24.4%
Giardia lamblia	34.4%	18.7%
Trichuris trichura[17]	6.1%	7.3%
Uncinarias[18]	16.0%	26.8%
Himinolepsis Nana	2.3%	0.8%

Table 6. Association of Having any Parasitic Infection with Age Among Children

	0-6 mo	6-12 mo	12-18 mo	18-24 mo	> 24 mo
No worms	5	8	7	8	22
Worms	0	2	7	13	60
Total N	5	10	14	21	82

Discussion

Patterns of undernutrition related to age are "typical" for the region and correspond to the time of weaning. Kids in late infancy through the toddler years are at highest risk for developing stunting and iron deficiency. Both of these conditions tend to be less severe as children reach the preschool years. Vitamin A deficiency does not appear to be as predictably related to age, but children in this population appear to be at risk of VAD

[15] Pineda, O. Fortification of sugar with vitamin A. Nutriview 1993; 2:6-7.

[16] 2. Solon FS, Solon MS, Mehansho H, West KP Jr, Sarol J, Perfecto C, Nano T, Gabilla A, Sanchez L, Isleta M, Sommer

A. "Effect of vitamin A fortified margarine in rural preschool children in the Philippines." Report of the XVI IVACG

Meeting, Chiang Rai, Thailand. Washington DC: The Nutrition Foundation Inc, 1994.

[17] Pinworm

[18] Hookworm

Educating mothers about weaning foods that are rich in calories, vitamins, and minerals would be an important intervention to pursue. Because soups seem to be frequently given in infancy, exploring the possibility of altering recipes or enhancing the nutritional quality of soups may be warranted. It is important to realize, however, that a food-based intervention will not be sufficient to prevent micronutrient deficiencies and that supplements must also be included in any nutrition intervention. Further analysis of food frequency data will be crucial for making recommendations as to what dietary habits might be changed.

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Appendix 1: PEOPLE INVOLVED IN THE SURVEY

Dr. Mabel Morales, Co-Director of Health, CEPAC

Dr. Oswaldo Chavez, Co-Director of Health, CEPAC

Ms. Miriam Mullini, CEPAC Nutrition Coordinator

Ms. Femida Gutierrez, Buena Vista Area Supervisor, CEPAC

Ms. Rosemary Samacuri, Yapacani Area Supervisor, CEPAC

Ms. Delia Llanos, San Carlos Area Supervisor, CEPAC

Kirk Leach, CS Project Director, IEF Bolivia

Alejandra Urioste, CS Project Support Staff, IEF Bolivia

Gwen O'Donnell, Nutrition Survey Director (and Child Survival/Vitamin A Coordinator), IEF USA

Lily Riva Clement, External Consultant

Dr. Kerry Schulze, External Consultant, Dept. of Human Nutrition, Bloomberg School of Public Health

Survey Team Members: German Zellada, Ambrocio Vallejos, Abraham Soliz, Claudia Ortiz, Irene Ticona, Justina Condori, Ramiro Ancase, Mery Elena Melean, and Luiz Rocha for excellent work.

Appendix 2- POPULATION DATA

*Dried Blood Spot

Localidad	*Pop. 1992*	*Pop. Estim. 2001*	*Acum Pop.*	*Cluster No.*	*No. of Survs.*	*No. of Feces Smpls*	*No. of DBS**
Buena Vista	2873	2933	2933	1, 2	40	8	40
Caranda	568	580	3513				
San Miguelito	204	208	3721				
Arboleda Centro Carretera	670	684	4405	3	20	4	20
Delicias	197	201	4606				
Potrerito-Cairito-Carmen	273	279	4885				
El Cairo	267	273	5157				
Potrero Marcelo	177	181	5338				
Santa Barbara	221	226	5564	4	20	4	20
Agua Caliente	185	189	5753				
Sindicato Colorado	202	206	5959				
Sindicato Monterrico	135	138	6097				
Sindicato Salitral	105	107	6204				
Villa Diego	355	362	6566				
Zona dispersa Espejitos	261	266	6833	5	20	4	20
Santa Rosa	209	213	7046				
Comunidad Espejitos	155	158	7204				
Villa Amboro	172	176	7380				
Sindicato El Triunfo	114	116	7496				
Sindicato El Carmen	577	589	8085				
Cooperativa El Cheyo	213	217	8303				
Recompensa I	419	428	8730				
Camino Huaytu	905	924	9654	6	20	4	20
San Isidro	512	523	10177				
Comunidad San Isidro	194	198	10375	7	20	4	20
Camino San Isidro - Caranda	318	325	10700				
San Javier	325	332	11031				
Palacios	51	52	11084				
San Javier	274	280	11363				
San Miguel	490	500	11863				
San Miguel Rincon	243	248	12112				
San Miguel Afuera	247	252	12364				
San Carlos	3223	3290	15654	8, 9	40	8	40
Santa Fe de Yapacani	4029	4113	19767	10,11,12	60	12	60
Buen Retiro	1544	1576	21343	13	20	4	20
Colonia Villa Antofagasta	605	618	21961				
San Juan de Yapacani	2344	2393	24354	14	20	4	20
Estancia Raul Menacho	305	311	24665	15	20	4	20
San Pedro de Yapacani	202	206	24871				

Maria Auxiliadora	137	140	25011				
Esatancia Hugo Molina	112	114	25125				
Sindicato 6 de Agosto-Chapaco	111	113	25239				
Ayacucho - El Carmen	177	181	25419				
Sindicato Guadalquivir	232	237	25656				
Sindicato los Andes-Sta. Fe 2 de Agosto	225	230	25886				
Enconada	395	403	26289	16	20	4	20
Sindicato Bolivar, Villa Montes	133	136	26425				
Villa Cotoca	177	181	26606				
Faja Litoral-Sind. Mejillones	256	261	26867				
Faja Calama	134	137	27004				
Ayacucho - El Carmen	165	168	27172				
San Luis, Abaroa y 2 de Agosto	260	265	27438				
Estacion Buen Retiro	202	206	27644				
Sindicato Aguas Balancas	174	178	27822				
Camino Antofagasta Buen Retiro	86	88	27909				
Sindicato Piquiri	147	150	28059	17	20	4	20
San Lorenzo	341	348	28408				
San Carlos La Lidia	182	186	28593				
Camino San Lorenzo	181	185	28778				
San Carlos, Buena Vista, Sta Fe	482	492	29270				
Surutu- Atacagua	114	116	29387				
Los Mojos	84	86	29472				
Aguas Bonitas	161	164	29637				
Oriente Chichas	16	16	29653				
Mataracu y Sin. 2 de Agosto	90	92	29745	18	20	4	20
25 de Septiembre	281	287	30032				
Colonia San Juan	1040	1062	31093				
Yapacani **Villa German Bush**	8585	8764	39858	19,20,21 22, 23	100	20	100
San German de Yapacani	824	841	40699	24	20	4	20
Sindicato 16 de Julio	154	157	40856				
Sindicatos Arboleda-La Ele	252	257	41113				
Sindicato 24,22,8 de Sept.	378	386	41499				
Illimani Norte Sur	151	154	41653				
Puerto Grether-Coop. Santa Fe	286	292	41945	25	20	4	20
El Palmar	83	85	42030				
Sindicato Naranjal	337	344	42374				
San Jose Alto	369	377	42751				
Sindicato San Jose Bajo	108	110	42861				
Sindicato Las Petas	96	98	42959				
San Salvador-San Antonio	261	266	43225				
Valle Hermoso	146	149	43374				
Abanico 1	242	247	43621	26	20	4	20
Area Dispersa Hsta. Entrada	158	161	43783				

Abanico- Coumidad Chore							
Area Dispersa Hasta Rio Chore	248	253	44036				
Sindicato Luna Nueva	266	272	44307				
Villa Chore-El Palmar	444	453	44761	27	20	4	20
Barrientos	273	279	45039				
Villa Chore	425	434	45473				
Sindicato Moiller 27	228	233	45706				
Zona El Palmar San Germam	299	305	46011				
Sindicato Litoral	212	216	46228				
El Palmar UV-1, UV-2	552	564	46791				
Sindicato Ichilo	202	206	46997	28	20	4	20
Tercera Transversal, Villa Union	107	109	47107				
6 de Agosto San Isidro	220	225	47331				
Sindicato Condor	374	382	47713				
Sindicato Abaroa	374	382	48095				
Central Km 50-45	164	167	48262				
Viña del Mar	90	92	48354				
Puerto Abaroa	386	394	48748	29	20	4	20
Chorolque Km35 Km38	242	247	48995				
Cooperativa 1º de Mayo	240	245	49240				
Agrario Nuevo Horizonte	219	224	49464				
Cooperativa 2 de Abril	181	185	49649				
Villa Nuevo Horizonte	264	270	49918				
Sindicato Challavito	89	91	50009				
Cooperativa 15 de Agosto	173	177	50186				
Los Pozos	263	268	50454	30	20	4	20
Puerto de Palo	106	108	50562				
Comandito-Abanico 34	127	130	50692				
Cooperativa 27 de Mayo	256	261	50953				
Cooperativa Linares-San Miguel Troncal	111	113	51067				
Villa Esperanza	98	100	51167				
Abanico 21-Villa Imperial	199	203	51370				
Comunidad Simon Bolivar-Sindicato Abanico 18	162	165	51535				
Abanico Km. 15	180	184	51719				
Abanico 2-3 Arroyo Agua Dulce	149	152	51871				
KM 10							
Total	50811	51871					

Appendix 3- SURVEY QUESTIONNAIRE

CUESTIONARIO DE NUTRICIÓN A LOS ENCARGADOS DE NIÑOS MENORES DE CINCO AÑOS LA PROVINCIA DE ICHILO, SANTA CRUZ, BOLIVIA 2001

Nombre de entrevistador(a): _____

Fecha de entrevista: (día/mes/año) _____

Nombre de la comunidad: _____

Número de conglomerado: _____

Número de la casa de identificación: _____

A. CONSENTIMIENTO INFORMADO

Buenos días/tardes:

El motivo de nuestra visita es para averiguar sobre la salud de usted y de sus niños. Por esto estamos recogiendo información de 600 casas en la Provincia de Ichilo. Con esta información haremos un programa para mejorar el nivel de salud de sus niños. Entonces, necesitamos saber como se están alimentados, si tienen anemia o no (anemia es la falta de sangre), y si tienen bichos/gusanos en la barriga. Además necesitamos saber si a su niño le falta vitamina A. (La falta de vitamina A hace que el niño se enferme más y puede tener problemas con la vista.) Así quisiéramos hacerle algunas preguntas y después sacar una gotita de sangre de Ud. y de su niño. Los resultados de análisis de anemia les entregaremos en este momento.

Para averiguar si tienen bichos/gusanos, necesitamos un poco de ¨caca¨/ caquita. Los resultados y tratamiento gratuito serán entregados por los equipos móviles, puestos de salud, o centros médicos (dependiendo de lugar).

Si Ud. dispone del tiempo y está dispuesto a participar, favor decirnos que está de acuerdo y responda a las preguntas. Muchas gracias.

La persona encargada de cuidar al niño menor de cinco años está de acuerdo de participar: SI = 1 NO = 2 ☐

B. NIÑO MENOR DE CINCO AÑOS

1. ¿Hay niños menores de cinco años en esta casa? SI = 1 NO = 2 ☐

2. ¿Está disponible la mamá o la persona encargada de estos niños? (Quisiéramos hablar con la persona que cuida a los niños.) SI = 1 NO = 2 ☐

3. ¿Cuánto tiempo vive aquí? ☐
   1. Menos que un año
   2. Menos que 5 años
   3. Más que 5 años
   4. Más que 15 años
   5. Otro: _____

4. [***Si ha vivido aquí menos de un año***]: ¿Vivía en la Provincia Ichilo antes de venir aquí? SI = 1 NO = 2 ☐

5. ¿Le gustaría hablar en castellano o quechua? ☐
   1. Castellano
   2. Quechua

6. ¿Cuál es su nombre? _____

7. ¿Qué relación tiene con el niño(-a)? ☐
   1. La mamá
   2. Una hermana (o)
   3. La abuela
   4. Un niñera
   5. Una tía
   6. Otro: _____

8. ¿De cuántos niños menores de 5 años de edad que viven en esta casa está encargada? ☐
   _____

9. ¿Cuales son los nombres y edades de ellos?

NOMBRE:	SEXO:	EDAD: (Años y meses)
a.		☐.☐☐
b.		☐.☐☐
c.		☐.☐☐
d.		☐.☐☐
e.		☐.☐☐

[Escoja a un niño al azar, y si está, anote su nombre (*Si **no está**, escoja otro niño al azar)*:
_____]

10. (Sexo del niño) MUJER = **1** HOMBRE = **2** ☐

11. ¿Tiene un carnet de salud infantil para (nombre)?
    SI = **1** NO = **2** [Si es NO, vaya a #13] ☐

12. [Verificar en el carnet de salud si el niño ha experimentado una falta de crecimiento en los últimos seis meses.]
    SI FALTA DE CRECIMIENTO = **1** NO FALTA DE CRECIMIENTO = **2** ☐

13. ¿En qué día/mes/año nació *(nombre del niño)*? _____ ☐☐ / ☐☐ / ☐☐

14. [***Verificar la edad del niño en años y meses***]
    Edad del niño: [Años y meses] ☐. Años ☐☐ meses

C. <u>DATOS GENERALES</u>

15. ¿Hay electricidad en la casa? SI = 1 NO = 2 ☐

16. ¿Hay un radio en la casa? SI = 1 NO = 2 ☐

17. ¿Hay una televisión en la casa? SI = 1 NO = 2 ☐

18. ¿Tiene un huerto? SI = 1 NO = 2; [Si es NO, vaya a #20) ☐

19. ¿Qué tipo de huerto es? ☐

1. De verduras
2. De frutas
3. Ambos
4. Otro: _____

20. ¿Quien mantiene la familia? ☐
1. Madre
2. Padre
3. Tío (a)
4. Otros miembros de la familia
5. Abuelo (a)
6. Otro: _____

21. El/La que mantiene la familia, ¿cuantas horas trabaja por día? ☐
1. Menos de 4 horas
2. De 4 a 8 horas
3. De 8 a 12 horas
4. Otro: _____

22. ¿De donde recogen su agua? ☐
1. El grifo domiciliario
2. Un bomba rosario
3. El río
4. Pileta pública
5. Noria o pozo con balde
6. Vertiente
7. Otro: _____

23. ¿Qué distancia tiene que ir para recoger su agua? ☐
1. En la casa
2. Menos que un Km.
3. 2-5 Km.
4. 5-10 Km
5. 10 - 10+ Km
6. Otro: _____

24. ¿Donde van al baño? ☐
1. Una taza higiénica con arrastre de agua (Indoro)
2. Letrina tradicional o pozo común
3. Letrina mejorada o seca
4. Campo abierto
5. Otro: _____

25. ¿La familia tiene terreno propio para cultivar o alquilar a otras personas?
SI = 1 NO = 2; [Si es SI, vaya a #27) ☐

26. ¿La familia tiene terreno alquilado para cultivar? SI = 1 NO = 2 ☐

27. ¿Poseen animales? SI = 1 NO = 2; [Si es NO, vaya a #30] ☐

28. ¿Qué tipo de animales tienen? ☐☐☐
1. Gallinas
2. Vacas
3. Patos
4. Cerdo
5. Cordero
6. Conejo
7. Cabra
8. Otro: _____

29. ¿Su familia comen los productos/(la carne) de los animales o los venden? ☐
1. Consumo domestico
2. Vendidos
3. Ambos
4. Otro: _____

D. DATOS DE LA PERSONA ENCARGADA DEL NIÑO

30. Estado Civil: ☐
    1. Unión libre
    2. Casada
    3. Divorciada
    4. Soltera
    5. Viuda

31. ¿Cuántos años cumplidos tiene? ☐☐

32. ¿Cuántos años asistió a la escuela? ☐☐

33. ¿Sabe leer? SI = 1 NO = 2 POCO = 3; [*Verificarlo*] ☐

34. ¿Trabaja fuera de la casa? SI = 1 NO = 2; [Si es NO, vaya a #37] ☐

35. ¿Cuál es su trabajo fuera de la casa? ☐
    1. Vendedora
    2. Profesora
    3. Sector salud
    4. Comerciante
    5. Trabajador del chaco
    6. Otro: _____

36. ¿Cuantas horas por día trabaja fuera de la casa? ☐☐

E. PRACTICAS SOBRE ALIMENTACIÓN INFANTIL *"Ahora quisiera hacerle algunas preguntas sobre la práctica de alimentación en su casa."*

37. ¿Quién compra los alimentos y los lleva a la casa? ☐
    1. La mamá
    2. El padre
    3. Un hermano(a)
    4. Abuela
    5. Tía
    6. La madre y el padre
    7. Otro: _____

38. ¿Quien prepara la comida en su casa?
    1. La mamá
    2. Un hermano(a)
    3. La abuela
    4. Varias personas por turno
    5. Otro: _____ ☐

39. ¿A qué edad le empezó a dar comida seca? [Si es #7, vaya a 40] ☐
    1. 2 meses
    2. 3 meses
    3. 4 meses
    4. 5 meses
    5. 6 meses
    6. 6 meses- 1 año
    7. Ninguno (sigue lactando solamente)
    8. Otro: _____

40. En total, ¿cuantas veces por día come su hijo normalmente? ☐
    1. Uno
    2. Dos
    3. Tres
    4. Cuatro
    5. Cinco
    6. Otro: _____

41. ¿Qué es lo que comió más *(nombre del niño)* durante la semana pasada para el desayuno? ☐☐☐
    [Marque una o más opciones.]
    1. Sopita
    2. Pan
    3. Huevo
    7. Arroz
    8. Queso
    9. Fruta
    13. Café
    14. Locro
    15. Fideo
    19. Maíz en mote
    20. Chicha de maíz
    21. Avena

4. Carne	10. Leche materna	16. Yuca	22. Té
5. Pollo	11. Leche de vaca	17. Ensalada	23. Verduras
6. Carne/Monte	12. Leche de tarro	18. Papa	24. Cocoa 25. Otro:___

42. ¿Qué es lo que comió más *(nombre del niño)* durante la semana pasada para el almuerzo? ☐☐☐
[Marque una o más opciones.]

1. Sopita	7. Arroz	13. Café	19. Maíz en mote
2. Pan	8. Queso	14. Locro	20. Chicha de maíz
3. Huevo	9. Fruta	15. Fideo	21. Avena
4. Carne	10. Leche materna	16. Yuca	22. Té
5. Pollo	11. Leche de vaca	17. Ensalada	23. Verduras
6. Carne/Monte	12. Leche de tarro	18. Papa	24. Cocoa 25. Otro:___

43. ¿Qué es lo que comió más *(nombre del niño)* durante la semana pasada para la cena? ☐☐☐
[Marque una o más opciones.]

1. Sopita	7. Arroz	13. Café	19. Maíz en mote
2. Pan	8. Queso	14. Locro	20. Chicha de maíz
3. Huevo	9. Fruta	15. Fideo	21. Avena
4. Carne	10. Leche materna	16. Yuca	22. Té
5. Pollo	11. Leche de vaca	17. Ensalada	23. Verduras
6. Carne/Monte	12. Leche de tarro	18. Papa	24. Cocoa 25. Otro: ____

44. ¿Qué es lo que comió más ***(nombre del niño)*** entre las comidas principales (aparte del desayuno, almuerzo, la cena)? ***[Marque una o más opciones.]*** ☐☐☐

1. Sopita	7. Arroz	13. Café	19. Maíz en mote
2. Pan	8. Queso	14. Locro	20. Chicha de maíz
3. Huevo	9. Fruta	15. Fideo	21. Avena
4. Carne	10. Leche materna	16. Yuca	22. Té
5. Pollo	11. Leche de vaca	17. Ensalada	23. Verduras 25. Nada
6. Carne/Monte	12. Leche de tarro	18. Papa	24. Cocoa 26. Otro:__

45. Generalmente, ¿A quien sirve primero en la casa? ☐
1. Los niños
2. El padre
3. Las personas mayores
4. Otro: _____

46. Generalmente, ¿quienes comen con los niños? ☐

1. La madre	4. La persona encargada de los niños
2. El padre	5. La persona encargada de los niños y los padres
3. La madre y el padre	6. Otro: _____

47. ¿Comen los niños de su propio plato? SI = **1** NO = **2** ☐

F. PRACTICAS DE DAR PECHO

48. ¿Cuánto tiempo después del parto le dio al niño la mamá leche materna por primera vez? ☐
1. Durante la primera hora 3. No sabe

2. Después de la primera hora 4. Nunca se lo dio al bebé 5. Otro: _____

49. ¿Hasta qué edad le dio sólo pecho o teta Ud./la mamá? ☐

1. 1 mes 4. 3-4 meses 7. Más que 6 meses
2. 1-2 meses 5. 4-5 meses 8. Sigue lactando
3. 2-3 meses 6. 6 meses 9. Nunca 10. Otro:_____

50. ¿Está dando pecho ahora Ud./la mamá? SI = 1 NO = 2; [Si es SI, vaya a #52] ☐

51. ¿A qué edad destetó al niño? ☐ Años y ☐☐ Meses
9 9 9 = No Sabe

52. ¿Por qué dejó de darle pecho Ud./la mamá? ***[Marque una o más opciones.]*** ☐☐☐

1. Falta de leche
2. Problema en el pezón o pecho
3. La madre trabaja fuera de la casa
4. No se llenaba solo con la leche materna
5. El niño era grande
6. El niño enfermo o débil
7. La madre enferma o débil
8. Estaba embarazada de nuevo
9. El niño rechazo el pecho
10. Hizo daño
11. Por cuidar el cuerpo
12. Uso de métodos anticonceptivos
13. Por consejo de amigos o familiares
14. No sabe
15. Otro: _____

53. ¿A qué edad empezó a dar líquidos (aguitas, sopitas, jugos, mates, etc.)? ☐
[Si es #5, vaya al 54]

1. Antes de la 4 meses 3. Entre 6 -12 meses 5. Ninguno
2. Entre 4-6 meses 4. Entre 1 - 2 años 6. No sabe 7. Otro: _____

54. ¿Qué clase de líquidos le dio? ***[Marque una o más opciones.]*** ☐☐☐

1. Mate/te
2. Clases de Agua
3. Leche de tarro
4. Leche de vaca
5. Jugos
6. Café
7. Sopitas
8. Chicha de maíz
9. Avena con leche
10. Maizena
11. Otro: _____

55. ¿Da/dio leche de tarro al niño? SI = 1 NO = 2; [Si es NO, vaya a #56] ☐

56. ¿Porque da/dio leche de tarro al niño? ***[Marque una o más opciones.]*** ☐☐

1. Falta de leche
2. Tiene mas vitaminas
3. El wawa no chupa la leche materna
4. La madre trabaja
5. Con la leche materna no se llena
6. Otro: _____

G. LA SALUD DEL NIÑO

57. ¿Está sano ahora *(nombre del niño)*? SI = 1 NO = 2 NO SABE = 3 ☐

58. ¿En los últimos 2 semanas, tuvo *(nombre del niño)* diarrea, es decir 3 o más veces en un día? SI = 1 NO = 2 NO SABE = 3; [Si es NO, vaya a #60] ☐

59. ¿Buscó ayuda? SI = 1 NO = 2; [Si es NO, vaya a #60] ☐

60. ¿A quien fue primero? ☐
1. Un RPS 3. Una enfermera 5. Un curandero
2. Un auxiliar de salud 4. Un médico 6. A la farmacia 7. Otro:_____

61. En caso de que alguno de sus niños tuvo diarrea, ¿qué líquidos le ofreció? ☐☐☐
[Marque una o más opciones.]
1. Suero casero
2. Sales de rehidratación oral
3. Líquidos (mates, jugos, agua, café etc.)
4. Lactancia materna
5. Agua de arroz
6. Agua de plátano
7. Sopitas
8. Maizena
9. Avena con leche
10. Nada
11. Agua de manzanilla
12. Otro: _____

62. ¿La cantidad que le ofrece de líquido es? ☐
1. Igual cantidad que antes 3. Menor cantidad que antes
2. Mayor cantidad que antes

63. ¿En los últimos 2 semanas, tuvo *(nombre del niño)* IRA (tos, gripe, resfría, bronquitis, pulmones)? SI = 1 NO = 2 NO SABE = 3; [Si es NO, vaya a #65] ☐

64. ¿Buscó ayuda? SI = 1 NO = 2; [Si es NO, vaya a #65] ☐

65. ¿A quien fue primero? ☐
1. Un RPS 3. Una enfermera 5. Un curandero
2. Un auxiliar de salud 4. Un médico 6. A la farmacia 7. Otro:_____

66. En las dos últimas semanas, ¿tuvo *(nombre del niño)* fiebre?
SI = 1 NO = 2 NO SABE = 3; [Si es NO, vaya a #68] ☐

67. ¿Buscó ayuda? SI = 1 NO = 2; [Si es NO, vaya a #68] ☐

68. ¿A quien fue primero? ☐
1. Un RPS 3. Una enfermera 5. Un curandero
2. Un auxiliar de salud 4. Un médico 6. A la farmacia 7. Otro:_____

H. PARÁSITOS

69. ¿Ud. sabe que es la parasitosis (bichos)/gusanos?
SI = 1 NO = 2; [Si es NO, vaya a #73] ☐

70. ¿Cómo es la parasitosis? ***[Marque una o más opciones.]*** ☐☐☐
1. Niño come tierra
2. Niño con anemia
3. Niño no quiere comer
4. Niño con barriga grande
5. Niño duerme mucho
6. Suena los dientes mientras duerme
7. Otro: _____

71. ¿Por qué cree que los niños tienen bichos o gusanos en la barriga? ***[Escriba la respuesta(s).]***

72. ¿Qué hace cuando su niño tiene parásitos (bichos)/gusanos? ☐☐☐
[Marque una o más opciones.]

1. Consulta con un médico
2. Consulta con enfermera(o)
3. Consulta a los RPS
4. Consulta a un curandero
5. Consulta a la farmacia
6. Otro: _____

73. ¿Ha recibido tratamiento *(nombre del niño)* para los bichos/gusanos?
SI = 1 NO = 2 NO SABE = 3 ☐

I. CONOCIMIENTO DEL HIERRO Y VITAMINA A:

74. ¿Conoce Ud. estas tabletitas? [*Muestra tabletitas de sulfato ferroso*]
SI = 1 NO = 2 ☐

75. ¿Ha tomado Ud. estas tabletitas? SI = 1 NO = 2 NO SABE = 3 ☐

76. ¿Ha recibido sus niños menores de 5 años jarabe/tabletas de sulfato ferroso?
SI = 1 NO = 2 NO SABE = 3 ☐

77. ¿Conoce Ud. estas cápsulas? [*Muestra cápsulas de la vitamina A*]
SI = 1 NO = 2 ☐

78. ¿Han recibido sus niños menores de 5 años vitamina A en las últimas seis meses?
SI = 1 NO = 2 NO SABE = 3 ☐

79. [*Verificar con el Carnet de Salud Infantil*]
SI RECIBIO VIT. A = 1 NO RECIBIO VIT A.= 2 NO TIENE CARNET = 3 ☐

80. ¿Ha tomado Ud. cápsulas de vitamina A? SI = 1 NO = 2 NO SABE = 3 ☐

J. PROBLEMAS DE LOS OJOS

81. ¿Tiene problemas/dificultad *(nombre del niño)* para ver durante el día?
SI = 1 NO = 2 ☐

82. ¿Tiene problemas/dificultad *(nombre del niño)* para ver en la noche?
SI = 1 NO = 2 ☐

83. ¿Tiene problemas/dificultad sus otros niños para ver en el día?
SI = 1 NO = 2 ☐

84. ¿Tiene problemas/dificultad sus otros niños para ver en la noche?
SI = 1 NO = 2 ☐

85. ¿Tiene Ud. problemas/dificultad para ver durante el día?
SI = 1 NO = 2 ☐

86. ¿Tiene Ud. problemas/dificultad para ver en la noche?
SI = 1 NO = 2 ☐

87. ¿En las últimas tres meses de su embarazo, ¿tuvo problemas con la vista?

SI = 1 NO = 2 ☐

K. FRECUENCIA DE CONSUMO DE ALIMENTOS:

"Ahora quisiera preguntarle algunas preguntas de lo que *(nombre del niño)* comió la semana pasada."

a. Durante la semana pasada, se le dio (ESPECIFIQUE COMIDA) en su comida al *(nombre del niño)*?

b. En los días que *(nombre del niño)* comió (COMIDA ESPECIFIQUE), comió una cantidad pequeña (P), mediana (M), o grande (G)?

NOMBRE DE COMIDA	**NÚMERO DE DÍAS QUE LO COMIÓ**								**P = 1 M = 2 G = 3**	
Alimentos Ricos en Vitamina A									[#]	[Cantidad]
88. Acelga	0	1	2	3	4	5	6	7	☐	____☐____
89. Culandro (Cilandro)	0	1	2	3	4	5	6	7	☐	____☐____
90. Cebolla entera	0	1	2	3	4	5	6	7	☐	____☐____
91. Espinaca	0	1	2	3	4	5	6	7	☐	____☐____
92. Hoja de apio	0	1	2	3	4	5	6	7	☐	____☐____
93. Hígado	0	1	2	3	4	5	6	7	☐	____☐____
94. Lechuga	0	1	2	3	4	5	6	7	☐	____☐____
95. Mandarina	0	1	2	3	4	5	6	7	☐	____☐____
96. Mantequilla	0	1	2	3	4	5	6	7	☐	____☐____
97. Perejil	0	1	2	3	4	5	6	7	☐	____☐____
98. Zapallo	0	1	2	3	4	5	6	7	☐	____☐____
99. Huevo	0	1	2	3	4	5	6	7	☐	____☐____
100. Zanahoria	0	1	2	3	4	5	6	7	☐	____☐____
101. Quírquiña	0	1	2	3	4	5	6	7	☐	____☐____
102. Atún en aceite	0	1	2	3	4	5	6	7	☐	____☐____
103. Manga	0	1	2	3	4	5	6	7	☐	____☐____
104. Melón	0	1	2	3	4	5	6	7	☐	____☐____
105. Papaya	0	1	2	3	4	5	6	7	☐	____☐____
106. Riñón	0	1	2	3	4	5	6	7	☐	____☐____
107. Pescado	0	1	2	3	4	5	6	7	☐	____☐____
Alimentos ricos en Hierro										
108. Chuño negro	0	1	2	3	4	5	6	7	☐	____☐____
109. Cocoa	0	1	2	3	4	5	6	7	☐	____☐____
110. Coca Chapare	0	1	2	3	4	5	6	7	☐	____☐____
111. Fideo	0	1	2	3	4	5	6	7	☐	____☐____
112. Haba	0	1	2	3	4	5	6	7	☐	____☐____
113. Lenteja	0	1	2	3	4	5	6	7	☐	____☐____
114. Morcilla	0	1	2	3	4	5	6	7	☐	____☐____
115. Pasankalla	0	1	2	3	4	5	6	7	☐	____☐____
116. Soya	0	1	2	3	4	5	6	7	☐	____☐____

Miscelaneas

117. Sal	0	1	2	3	4	5	6	7 ☐	____☐____
118. Azucar	0	1	2	3	4	5	6	7 ☐	____☐____
119. Aceite	0	1	2	3	4	5	6	7 ☐	____☐____
120. Margarina	0	1	2	3	4	5	6	7 ☐	____☐____
121. Leche de tarro	0	1	2	3	4	5	6	7 ☐	____☐____

122. *[Si no come ninguno de estos alimentos]:* ¿Por qué no come ninguno de estos alimentos?

1. Solo toma leche materna
2. Solo toma leche de tarro
3. Solo toma una combinación de leche materna y leche de tarro
4. No hay acceso a estos alimentos ☐
5. Otro: _____

L. DATOS ANTROPOMÉTRICOS Y LABORATORIALES (HEMOGLOBINA, VITAMINA A y HESES)

Información del Niño

123. Peso (KG) _____ ☐☐.☐☐

124. Talla (CM) _____ ☐☐.☐

125. Brazo (CM) _____ ☐☐.☐

126. Hemoglobina (G/DL)_____ ☐☐.☐

127. Vitamina A: _____ SI = 1 NO = 2 ☐

128. Número de Muestra de Sangre* _____ ☐☐☐

129. Número de Bolsa _____ ☐

130. Concentración de Vitamina A en la MSS _____ ☐☐☐.☐

131. Número de Sangre Capilar* _____ ☐☐☐

132. Número de Muestra de Heses* _____ (NIÑO) ☐☐☐

133. Tipo de Parásitos ☐☐☐☐

1. Ascaris lumbricodes
2. Ameba histolítica
3. Ameba coli
4. Uncinarias
5. Strongiloides Stercoralis
6. Himinolepsis Nana
7. Trichuris trichura
8. Giardia lamblia
9. Otro: _____

Información de la Madre:

134. Hemoglobina (G/DL)_____ ☐☐.☐

135. Número de Muestra de Heses* _____ (MADRE) ☐☐☐

136. Tipo de Parásitos ☐☐☐☐

1. Ascaris lumbricodes
2. Ameba histolítica
3. Ameba coli
4. Uncinarias
5. Strongiloides Stercoralis
6. Himinolepsis Nana
7. Trichuris trichura
8. Giardia lamblia
9. Otro: _____

Nombre del Supervisor: _____

Firma del Supervisor: _____

Appendix 4- FOCUS GROUP GUIDE FOR MOTHERS

INVESTIGACION FORMATIVA
GUIA DE DISCUSION DE GRUPO FOCAL PARA LAS MADRES

A. COMMUNICACION/ESTRUCTURA EN LA CASA:

1. En su casas, quiene(s) cuida/está encargado(s) de los niños?
2. Quien es jefe de la familia?
3. Cuantos niños menores de 5 años de edad hay en sus casas?
4. Por cuanto tiempo vive aguí?

B. PRACTICAS DE ALIMENATACION

1. Cuantas horas después de sus partos empezaron a dar pecho al bebé?
2. Qué hacen las madres con la primera leche/"la corta"? Porque?
3. Están dando pecho ahora?
4. Cuantas veces al día dan pecho?
5. Hasta que edad dan pecho a un niño? Porqué?
6. Porque dejaron de dar pecho?
7. A que edad introducieron liquidos? Qué liquidos?
8. Han dado leche de tarro (e.g. Nestle) a sus niños? Porqué y a qué edad?
9. A que edad empezaron a dar comidas a sus hijos? Porqué?
10. Quien da comida a sus niños?
11. Cuantas veces al día dan comida a sus niños?
12. Habitualmente qué dan de comer a sus hijos para:
    a. el desayuno?
    b. el almuerzo?
    c. la cena?
13. Qué alimentos le da a su niño entre las comidas principales (aparte del desayuno, almuerzo, la cena)?
14. Comen sus nino de sus propios platos o comparten con otros?
15. Qué hacen cuando sus niños no quieren comer?

C. ALIMENTACION EN LAS DIFERENTES ETAPAS DE LA VIDA

1. Qué es comida apropriada para:
    a. Una wawa hasta 1 año? Porqué?
    b. Un wawa de 1-2 años? Porqué?
    c. Un niño de 2-5 años? Porqué?
    d. Una mujer embarazada? Porqué?
    e. Una mujer que está dando pecho? Porqué?
    f. Una mujer que no está dando pecho? Porqué?
2. Que problemas tienen alimentando a sus niños cuando están sanitos?

D. LA DESNUTRICION

1. Conoce/sabe que es la desnutrición? Qué es? Explique.
2. Cuantos tipos de desnutrición hay?
3. Conoce/sabe las causas de la desnutrición?

E. COMIDAS PARA UN NINO ENFERMO

1. Comó se cuida a un nino enfermo con:
    a. Diarrhea? Porqué?

2. Qué tipo de comida le da a un nino con:
   a. Diarrhea? Porqué?
3. Qué comidas especiales le da a su niño enfermo?

F. TABU ALIMENTARIA

1. Qué comidas son malas para:
   a. Una wawa hasta 1 año? Porqué?
   b. Un wawa de 1-2 años? Porqué?
   c. Un niño de 2-5 años? Porqué?
   d. Una mujer embarazada? Porqué?
   e. Una mujer que está dando pecho? Porqué?
   f. Una mujer que no está dando pecho? Porqué?
2. Qué comidas son malos para el niño enfermo (e.g. diarrhea, IDA/EDA)?

G. COMIDA

1. De donde compra/consigue su comida?
2. Quien prepara la comida en sus casas?
3. Cuantas veces por día comen uds. (las madres)?
4. Qué tipo de comidas comen?
5. Hay variedad en las comidas/alimentos que comen durante el año (según epocas distinctas, por ejemplo)?
6. Hay comidas especiales para los feriados/las fiestas/los cumpleaños?

H. VITAMINAS

1. Qué son las vitaminas?
2. Qué vitaminas conocen?
3. Donde se las encuentran?
4. Para que sirven?
5. Quien las necesitan?

I. VITAMINA A

1. Que saben y para que sirve la vitamina A? [Muestra capsulas de vitamina A]
2. Donde/Comó se consigue la vitamina A?
3. Han recibido vitamina A sus niños menores de 5 años? Cuando y donde?
4. Qué comidas tienen vitamina A? Cuales?
5. Pasa algo si no tiene vitamina A en el cuerpo? Qué?
6. Qué se podría hacer aguí para que un niño menor de 5 años tuviera mas vitamina A en su cuerpo?

J. HIERRO

1. Conocen la anemia? Qué es?
2. Qué pasa cuando alguien tiene anemia?
3. Comó sabe que un niño tiene anemia?
4. Comó sabe que una mujer tiene anemia?
5. Sus niños menores de 5 años han recibido jarabe/tabletas de sulfato ferroso? Cuando y donde? [Muestra jarabe/tabletas de sulfato ferroso]
6. Que saben y para que sirve el sulfato ferroso?
7. Qué comidas tienen sulfato ferroso? Cuales?
7. Pasa algo si no tiene hierro/sulfato ferroso en el cuerpo? Qué?

8. Qué se podria hacer aguí para que un niño menor de 5 años tuviera mas hierro/sulfato ferroso en su cuerpo?

K. PROBLEMAS CON LOS OJOS

1. Hay algunas de uds. que tienen dificultad/problemas para ver en la noche?
2. Conocen niños que tienen dificultad/problemas para ver en la noche?
3. Algunas de uds. tuvieron problemas con la vista en la fase final de su embarazo?

L. SANIMIENTO BASICO

1. De donde recogen el aqua que usan para tomar y cocinar?
2. Donde van al baño?

Appendix 5- FOCUS GROUP GUIDE FOR COMMUNITY HEALTH WORKERS (RPSs)

INVESTIGACION FORMATIVA
GUIA DE DISCUSION DE GRUPO FOCAL PARA LOS RPSs

A. CREENCIAS COMUNES SOBRE LAS ENFERMEDADES EN LAS COMUNIDADES

1. De qué enferman más los niños en su comunidad?
2. Qué enfermedades de los niños causan mucha tristeza y preocupación a los padres?
3. Porqué creen que les da diarrea a los niños?
4. Porqué creen que los niños tienen bichos o gusanos?

B. PRACTICAS SOBRE LA SALUD EN LAS COMUNIDADES

1. Qué hacen los padres cuando sus niños tienen:
   a. Diarrea? Porqué?
   b. Resfrios/Neumonia? Porqué?
   c. Fiebre? Porqué?
2. Qué hacen uds. cuando un niño está enfermo con:
   a. Diarrea? Porqué?
   b. Resfrios/pneumonia? Porqué?
   c. Fiebre? Porqué?
3. Piensan que las vacunas son buenas para los niños? Porqué?
4. Que hacen los padres para que sus niños no se enfermen?
5. Qué opinan del personel de salud que hay en los puestos de salud, las hospitales, etc.?

C. COMIDAS PARA UN NINO ENFERMO

1. Qué tipo de comida le da a un nino con:
   a. Diarrhea? Porqué?
   b. Resfrios/pneumonia? Porqué?
   c. Fiebre? Porqué?
2. **Hay comidas especiales que se da a un niño enfermo?**

D. ALIMENTACION EN LAS DIFERENTES ETAPAS DE LA VIDA

1. Qué comidas debe comer naturalmente:
   a. Una wawa hasta 1 año? Porqué?
   b. Un wawa de 1-2 años? Porqué?
   c. Un niño de 2-5 años? Porqué?
   d. Una mujer embarazada? Porqué?
   e. Una mujer que está dando pecho? Porqué?
   f. Una mujer que no está dando pecho? Porqué?
2. Que problemas tienen los padres en sus comunidades alimentando a sus niños cuando están sanitos?

E. LA DESNUTRICION

1. Conoce que es la desnutrición? Qué es? Explique.
2. Cuantos tipos de desnutrición hay?
3. Conoce/sabe las causas de la desnutrición?

F. TABU ALIMENTARIA

1. Qué comidas son malas para:
   a. Una wawa hasta 1 año? Porqué?
   b. Un wawa de 1-2 años? Porqué?
   c. Un niño de 2-5 años? Porqué?
   d. Una mujer embarazada? Porqué?
   e. Una mujer que está dando pecho? Porqué?
   f. Una mujer que no está dando pecho? Porqué?

G. VITAMINAS

1. Qué son las vitaminas?
2. Qué vitaminas conocen?
3. Donde se las encuentran?
4. Para que sirven?
5. Quien las necesitan?

H. VITAMINA A

1. Que saben y para que sirve la vitamina A? [Muestra capsulas de vitamina A]
2. Donde/Comó se consigue la vitamina A?
3. Han recibido vitamina A los niños menores de 5 años en su comunidad? Cuando y donde?
4. Qué comidas tienen vitamina A?
5. Pasa algo si no tiene vitamina A en el cuerpo? Qué?
6. Qué se podría hacer aguí para que un niño menor de 5 años tuviera más vitamina A en su cuerpo?

I. HIERRO

1. Conocen la anemia? Qué es?
2. Qué pasa cuando alguien tiene anemia?
3. Comó sabe que un niño tiene anemia?
4. Comó sabe que una mujer tiene anemia?
5. Los niños menores de 5 años en su comunidad han recibido jarabe/tabletas de sulfato ferroso? Cuando y donde? [Muestra jarabe/tabletas de sulfato ferroso]
6. Que saben y para que sirve el sulfato ferroso?
7. Qué comidas tienen sulfato ferroso? Cuales?
8. Pasa algo si no tiene hierro/sulfato ferroso en el cuerpo? Qué?
9. Qué se podria hacer aguí para que un niño menor de 5 años tuviera mas hierro/sulfato ferroso en su cuerpo?

J. PROBLEMAS CON LOS OJOS

1. Hay algunas de uds. que tienen dificultad/problemas para ver en la noche?
2. Conocen niños que tienen dificultad/problemas para ver en la noche?
3. Conocen algunas mujeres que tuvieron problemas con la vista en la fase final de su embarazo?
4. Algunas de uds. tuvieron problemas con la vista en la fase final de su embarazo?

Appendix 6- FOCUS GROUP GUIDE FOR HEALTH PERSONNEL

INVESTIGACION FORMATIVA
GUIA DE DISCUSION DE GRUPO FOCAL PARA PERSONEL DE SALUD

A. CREENCIAS COMUNES SOBRE LAS ENFERMEDADES EN LAS COMUNIDADES

1. De qué enferman más los niños en su comunidad?
2. Qué enfermedades de los niños causan mucha tristeza y preocupación a los padres?
3. Porqué creen que les da diarrea a los niños?
4. Porqué creen que los niños tienen bichos o gusanos?

B. PRACTICAS SOBRE LA SALUD EN LAS COMUNIDADES

1. Qué hacen uds. cuando sus niños tienen:
   a. Diarrea? Porqué?
   b. Resfrios/Neumonia? Porqué?
   c. Fiebre? Porqué?
2. Piensan que las vacunas son buenas para los niños? Porqué?
3. Que pueden hacen los padres para que sus niños no se enfermen?
4. Qué opinan del los padres de familia de su comunidad?

C. COMIDAS PARA UN NINO ENFERMO

1. Según ud. qué tipo de comida le da a un nino con:
   a. Diarrhea? Porqué?
   b. Resfrios/pneumonia? Porqué?
   c. Fiebre? Porqué?
2. Hay comidas especiales que se da a un niño enfermo?

D. ALIMENTACION EN LAS DIFERENTES ETAPAS DE LA VIDA

1. Qué comidas debe comer naturalmente:
   a. Una wawa hasta 1 año? Porqué?
   b. Un wawa de 1-2 años? Porqué?
   c. Un niño de 2-5 años? Porqué?
   d. Una mujer embarazada? Porqué?
   e. Una mujer que está dando pecho? Porqué?
   f. Una mujer que no está dando pecho? Porqué?
2. Que problemas tienen los padres en sus comunidades alimentando a sus niños cuando están sanitos?

E. LA DESNUTRICION

1. Qué es la desnutrición?
2. Cuantos tipos de desnutrición hay?
3. Qué son las causas de la desnutrición?

E. **TABU ALIMENTARIA**

1. Qué comidas son malas para:
   a. Una wawa hasta 1 año? Porqué?
   b. Un wawa de 1-2 años? Porqué?
   c. Un niño de 2-5 años? Porqué?
   d. Una mujer embarazada? Porqué?

e. Una mujer que está dando pecho? Porqué?
f. Una mujer que no está dando pecho? Porqué?

F. VITAMINAS

1. Qué son las vitaminas?
2. Qué vitaminas conocen?
3. Donde se las encuentran?
4. Para que sirven?
5. Quien las necesitan?

G. VITAMINA A

1. Que saben y para que sirve la vitamina A?
2. Donde/Comó se consigue la vitamina A?
3. Han recibido vitamina A los niños menores de 5 años en sus comunidades? Cuando y donde?
4. Qué comidas tienen vitamina A? Cuales?
5. Pasa algo si no tiene vitamina A en el cuerpo? Qué?
6. Qué se podría hacer aguí para que un niño menor de 5 años tuviera mas vitamina A en su cuerpo?

H. HIERRO

1. Conocen la anemia? Qué es?
2. Qué pasa cuando alguien tiene anemia?
3. Comó sabe que un niño tiene anemia?
4. Comó sabe que una mujer tiene anemia?
5. Los niños menores de 5 años en sus comunidades han recibido jarabe/tabletas de sulfato ferroso? Cuando y donde?
6. Que saben y para que sirve el sulfato ferroso?
7. Qué comidas tienen sulfato ferroso? Cuales?
8. Pasa algo si no tiene hierro/sulfato ferroso en el cuerpo? Qué?
9. Qué se podria hacer aguí para que un niño menor de 5 años tuviera mas hierro/sulfato ferroso en su cuerpo?

I. PROBLEMAS CON LOS OJOS

1. Hay algunas personas en su comunidad que tienen dificultad/problemas para ver en la noche?
2. Conocen niños que tienen dificultad/problemas para ver en la noche?
3. Conocen mujeres que tuvieron problemas con la vista en la fase final de su embarazo?
4. Algunas de uds. tuvieron problemas con la vista en la fase final de su embarazo?

APPENDIX 7- TEAM TRAINING SCHEDULE

Cronograma de la Encuestra Nutricional, Provincia de Ichilo 3-7 Abril 2001

Día 1: 3 de Abril (Martes)

8:30-9:00 Introdución y Antecedentes (Gwen O´Donnell, Facilitadora)

i. Todos se presentan
ii. Horario para la semana
iii. Horario para la mes
iv. El pago
v. Comida; una persona para preparar el desayuno, almuerzo en papel aluminio, y la cena; (el propósito de los viaticos)

9:00-9:45 La Encuesta (Gwen O´Donnell, Facilitadora)

i. El propósito de la encuestra: falta de datos, información fundamental para diseñar y medir el efecto de una(s) intervención
ii. Opciones para la intervención(es): suplementación, fortificación, diversificación de la dieta, el Modelo Hearth, etc.
iii. Los pasos mayores de una encuesta: formando el cuestionario, probando y traduciendo el cuestionario, capacitando los equipos, estableciendo los logisticos, informando los encargados de las comunidades, obtiendo consentimiento informado de las madres, entrevistando madres, sacando muestras de sangre de niños y madres, haciendo medidas antropometricas de los niños, sacando heses de los niños, entrando los datos en un base de datos, analizando los datos
iv. Composición de los equipos: el rol y la responsibilidad de cada persona
v. La importancia de la alta calidad y buena supervisión/colaboración de todos
vi. Resumen de los datos a ser recogidas y las medidas para recogerlos.

9:45-10:00 La Nutrición (Gwen O´Donnell, Facilitadora)

i. Información general sobre la nutrición
ii. La desnutrición y las consecuencias: falta de crecimiento de los niños, etc.
iii. Información sobre la vitamina A: funciones, la carencia de VA y sus consecuencias, relación con morbilidad y mortalidad
iv. Información sobre el hierro: funciones, la carencia de hierro y sus consecuencias, relación con morbilidad y mortalidad

10:00-10:15 Etiqueta en las Comunidades (Luiz Rocha, Facilitador)

i. Informar a las autoridades locales del propósito del estudio con los objetivos por carta
ii. Averiguar si hay alguien quien estaría disponible para acompañarnos en la comunidad.
iii. Aceptar la comida ofrecida, etc.

10:15-10:30 Descanso

10:30-11:30 El Cuestionario (Gwen O´Donnell, Facilitadora)

i. La importancia del cuestionario
ii. El proceso de crear el cuestionario: entrevistas individuales a fondo; 4 grupos focales (8-10 personas) en cada área (madres urbanas, madres rurales, RPSs, personel de salud)
iii. Revisar el Cuestionario
iv. Probar el cuestionario en la prueba piloto en la comunidad

11:30-12:30 Parásitos (Dra. Julia Torrico & Agosto Hidalgo, Facilitadores)

i. Información general sobre los parásitos
ii. Porque es importante obtener información de los parásitos?
iii. La metodologia para pedir y recoger heses
iv. Los logisticos

12:30-12:45 Preparación de Los Insumos (Agosto Hidalgo, Facilitador)

12:00-1:50 Almuerzo

2:00-5:00 Medidas Antropometricas (Miriam Milluni y Gwen O´Donnell, Facilitadoras)

i. Antecedentes de la antropometría (e.g. el que, quien, como, porque para la antropmetria)
ii. El significado de talla para la edad, peso para la talla, peso para la edad
iii. Pesar
- la balanza: como funciona (e.g. la necesidad de usar tablas de madera; como se la enciende y apaga; la calibración; como la cuida)
- el método de pesar a las madres
- el método de pesar a los niños
- demonstración y todos practican los métodos

iv. Medir la talla
- el "Shorr Board": como funciona
- el método de medir la talla de niños menores de dos años
- el método de medir la talla de niños mayores de dos años
- demonstración y todos practican

v. Medir el brazo
- la cinta de brazo: el método de medir el tamaño del brazo
- demonstración y todos practican

5:00-5:15 Descanso

5:15-6:30 Repaso del Día- Presentaciones de 10 minutos

i. Propósito de la encuesta - Irene
ii. Importancia de buena nutrición - Luiz
iii. Vitamina A – Mery Elena
iv. Hierro- Claudia
v. Cuestionario- Ramiro
vi. Parásitos- Abrosio
vii. Medir el peso- Justina
viii. Medir la talla- Jernan
ix. Medir el brazo- Abraham

Día 2: 4 de Abril (Miercoles)

8:30-12:00 Metodología para el Estudio (Femida Gutierrez, Facilitadora)

i. Metodolgía de selección de las casas
ii. Metodolgía de selección de los niños

12:00-2:00 Almuerzo

2:00-6:30 Metodología para el Estudio (Femida Gutierrez, Facilitadora)

i. Practica de metodología

Día 3: 5 de Abril (Jueves)

8:30-12:00 "Blood Spots" para Medir la Carencia de Vitamina A (Howard Jackson, Facilitador)

i. Antecedentes del "blood spot" (que, quien, como, porque)
ii. Descripción y demonstración del protocolo para hacer los blood spots
iii. Todos practican

2:00-6:30 HemoCue para Medir la Carencia de Hierro (Gwen O'Donnell, Facilitadora)

i. Antecedentes (e.g. el que, quien, como, porque)
ii. Descripción y demonstración del protocolo para el test de HemoCue
iii. Todos practican

Día 4: 6 de Abril (Viernes)

8:30-6:30 Practicar en el Campo (en una comundidad fuera de los conglomerados)

Día 5: 7 de Abril (Sábado)

8:30-12:30 Practicar en el Campo (en una comundidad fuera de los conglomerados)

12:30-2:20 Almuerzo

2:30-5:30 Discussión de Las Dificultades y Problemas No Anticipados y Encontrados (Gwen O'Donnell, Facilitadora)

APPENDIX 8- SUPERVISOR CHECK LIST

Lista de Chequeo Para Los Supervisores

Equipo:_____
Fecha: _____
Firma del Supervisor: _____

A. Chequeo del Hemocue

Serial No. (de la Hemocue): _____
Número de la Cuveta de Control _____+- 0.3g/dl
Número de Prueba: _____

Observaciones: _____
_____

A. Instrucciones/Guias:

1. Vitamina A: ¿Qué es la vitamina A?¨ ☐
2. Collectión de Vit. A: ¨Manual de Campo Para la Collección de la Mancha de Sangre para el Analisis del Contenido de la Vitamina A.¨ ☐
3. Instruciones para el uso del Hemocue ☐
4. Instruciones para el uso de la Balanza ☐
5. 1 lamina a colores de la Vitamina A ☐
6. 10 Foletos de la Encuesta Nutricional ☐
7. Una carnet de salud infantil ☐
8. Nuevas Encuestas ☐

B. Materiales para Muestras de Sangre Seca:

1. 15 lancetas (al menos) ☐
2. 2 Fuentes de algodón (uno seco, otro con alcohol) ☐
3. Caja de guantes desechables ☐
4. 1 Cinta adhesiva ☐
5. 1 Frasco de alcohol ☐
6. Kleenex ☐
7. La maleta negra (para guadar las tarjetas) ☐
8. Tarjetas en un bolsa con absorbente ☐
9. Dos bolsas de plastico para las tarjetas con absorbentes ☐

C. Materiales para Muestras de Sangre Capilar:

1. 17 Microtubos ☐
2. Una conservadora de plastofor ☐
3. Perritos congelados!

D. Materiales para Muestra de Hemoglobina

1. Hemocue ☐
2. Lancetas ☐
3. 1 Frasco de cuvetas (c/tapa roja) con bastantes cuvetas ☐
4. 1 Jugette de Hemoglobina (¨Hemoglobina Man¨) ☐
5. 5 Baterias extras (tamaño AA) ☐

E. Materiales para Muestra de Heses

1. 4 Vasitos para heses ☐
2. 4 palitos ☐
3. Un rollo de tela adhesiva ☐
4. Una conservadora de plastofor ☐
5. Perritos congelados!

F. Materiales para Medidas Antropolometricas

1. Balanza ☐
2. Cintas metrica (Una grande; una para medir PB en un frasco) ☐
3. 1 tallimetro ☐
4. 4 batterias (de tamaño AA)* ☐
5. Tablera de madera

G. Miscelaneas

1. 1 Cuaderno espiral ☐
2. 3 Lapices ☐
3. 4 Boligrafos (dos rojos, dos permanentes) ☐
4. 1 Caja de crayons ☐
5. 1 Frasco de Vitamina A ☐
6. Una botella de vidrio ☐
7. Tijeras ☐
8. Una engrampadora ☐
9. Bolsa negra para la basura ☐
10. Botella vacia para meter las lancetas usadas ☐
11. 1 hoja de esponja ☐
12. Dulces ☐
13. Stickers :-) ☐

*Para el equipo de Yapacani: 2 de 9 voltas

APPENDIX 9- Report of DBS Analysis Prepared by Craft Technologies, INC.

CRAFT TECHNOLOGIES, INC.
Impacting the World

To: International Eye Foundation
From: Craft Technologies, Inc.
Subject: Summary of Bolivia DBS Retinol Analysis

A total of approximately 600 dried blood spot (DBS) samples collected in the field in Bolivia were received in a single shipment. All samples were removed from the shipping containers and immediately placed in –70 C freezers until cataloged and analyzed. The shipment also contained 67 serum samples that had matching DBS samples. DBS cards were packaged in zip-lock freezer bags with desiccant and moisture indicator cards

A 1/4 inch punch from each dried blood spot was eluted from the DBS card in aqueous buffer containing ascorbic acid as an antioxidant. The retinol:RBP complex was dissociated through the addition of acetonitrile containing an internal standard used for quantitation. The retinol was extracted from the aqueous phase into hexane. The hexane extract was measured directly using normal-phase HPLC with UV detection at 300 and 325 nm. The HPLC column was NH2 bonded to silica and the mobile phase was 1% isopropyl alcohol in hexane (Craft, J Nutr. 2001). The equipment was calibrated using neat solutions of retinol and the internal standard, tocol. Plasma and DBS quality control materials were included with each set of samples.

Matching serum samples obtained for a subset of the DBS samples were extracted and analyzed as previously described (Craft et al. J. Nutr. 2000). Briefly, samples were diluted with water, precipitated with ethanol containing tocol as an internal standard, and extracted with hexane. The hexane was evaporated under nitrogen and the residue dissolved in ethyl acetate and diluted with mobile phase. The samples were separated using reversed-phase HPLC with UV detection. The column was a Spherisorb ODS2 and the mobile phase was a mixture of 83% acetonitrile, 13% dioxane, and 4% methanol containing triethylamine and ammonium acetate. QC plasma and NIST control materials were analyzed with the plasma samples.

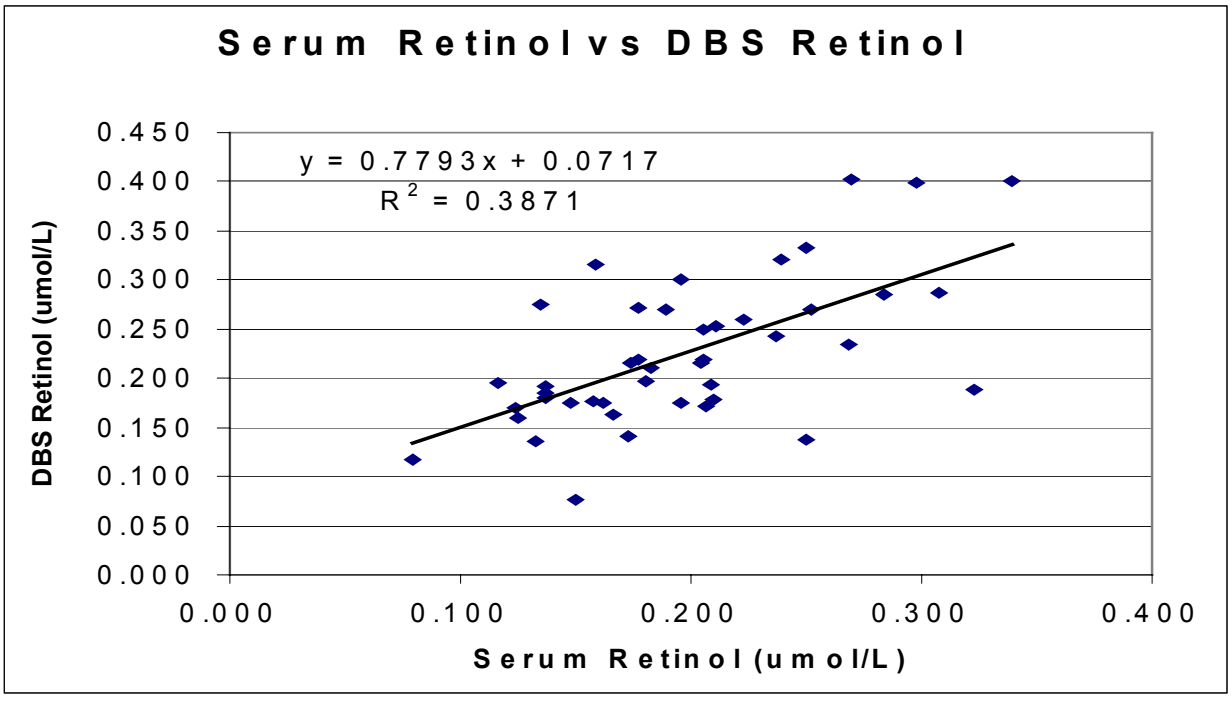
The correlation of DBS retinol with plasma retinol is provided in the spreadsheet, 2001-167 serum vs DBS. See Figure 1 for a graphical representation. Many of the blood samples were not adequately centrifuged to separate the serum from the erythrocytes and hemolysis was evident. Samples volume on several blood samples was inadequate. In addition, many of the DBS samples were not good quality. Halos formed around a significant portion of the DBS. We are uncertain how this occurs and what effect it has on the retinol measurement. Our hypothesis is that the serum component may migrate toward the periphery and the erythrocytes remain in the center of the DBS. If so, retinol would be lower in the center of the DBS, where we punch our sample. This phenomena may be the result of high humidity on the DBS cards. Since the correlation for this set of samples was low, the slope was not near to 1.0 and the intercept was relatively large; we calculated the recovery of retinol using control DBS of known retinol concentration. The recovery factor from the control DBS samples was applied to all the samples collected in Bolivia.

The results of retinol analysis are provided in electronic format and in the attached report, 2001-167 DBS only. The results are expressed with two different units (µg/mL and µmol/L). The values reported are equivalent to serum retinol concentrations. The frequency of samples below specified cut points is used to identify public health (PH) problems. These values are provided in several publications including WHO 1996, "Indicators for assessing vitamin A deficiency and their application in monitoring and evaluating intervention programmes." In children between 6-71mo of age, 0.7 µmol/L is the cut point used. If the frequency of subjects below 0.7 µmol/L is 2-10%, there is a mild PH problem; if 10-20% the problem is moderate; if >20% the problem is severe. In adults, values <1.05 µmol/L represent marginal vitamin A status, <0.7 µmol/L is moderate deficiency, and <0.35 µmol/L is severely deficient.

Retinol is transported in the blood associated with Retinol Binding Protein (RBP). Since RBP is a negative acute phase protein, retinol will decrease in the blood in response to infection and inflammation. The observation of halos is evidence of a possible gradient of retinol across the DBS. These factors should be considered when interpreting the frequency and severity of vitamin A deficiency since both would tend to reduce the measured vitamin A. We will test a subset of DBS samples and normalize for sodium to calculate the volume of serum in each DBS. This will allow us to determine if the halo or blood sampling influenced the DBS retinol.

This report and the electronic data files fulfill our commitments on this project with International Eye Foundation. We will continue to assist IEF if further clarification of the data is necessary.

Figure 1. Serum retinol versus adjusted dried blood spot retinol in samples from Bolivia measured by HPLC.



International Eye Foundation Retinol Analysis

Work Performed for Gwen O'Donnell
Analysis Date: August 6 - September 14, 2001

Sample #	Serum Retinol	Serum Quality	DBS Retinol	DBS Quality
	µg/mL			
306	0.196		0.175	
307	0.162		0.175	
308	0.205		0.216	
329	0.268		0.234	
330	0.307		0.286	
349	0.205		0.249	
352	0.173		0.141	
353	0.166		0.163	
354	0.323		0.189	
355	0.250		0.333	
356	0.284		0.285	
359	0.237		0.242	
360	0.207		0.171	
365	0.250		0.138	
366	0.151		0.076	
367	0.209		0.194	
371	0.205		0.220	
372	0.133		0.136	
374	0.137		0.192	
375	0.157		0.176	
491	0.177		0.272	
521	0.125		0.160	
523	0.252		0.270	
524	0.183		0.210	
525	0.124		0.170	
526	0.180		0.197	
542	0.177		0.219	
543	0.270		0.402	
544	0.135		0.276	
545	0.339		0.401	
546	0.159		0.316	
547	0.211		0.253	
548	0.298		0.400	
550	0.195		0.300	
552	0.137		0.186	
555	0.239		0.320	
556	0.117		0.196	
559	0.173		0.215	

570	0.080		0.118	
571	0.148		0.175	
572	0.137		0.179	
574	0.209		0.178	
591	0.223		0.260	
596	0.189		0.271	
Mean	0.198		0.226	
298	0.215	hem	0.095	halo
320	0.290	hem	0.190	halo
358	0.193	hem	0.271	halo
297	0.332	hem	0.210	
350	0.312	hem	0.242	
373	0.275	hem	0.364	
551	0.246	hem, gel	0.392	
361	0.137	lo vol	0.183	
369	0.336	lo vol	0.132	
370	0.315	lo vol	0.175	
240	0.349		0.188	halo
541	0.364		0.226	halo
573	0.141		0.212	halo
Mean	0.270		0.222	

excluded from the figure due to questionable quality