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**PARTICIPATION IN THE WORKSHOP
FOR TECHNICAL COOPERATION IN
EPI/ARI AND IN THE INTER-AGENCY
COORDINATION COMMITTEE MEETING**

USAID/La Paz

August, 1988

**Resources for
Child Health
Project**

REACH



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Participation in the
Workshop for Technical Cooperation in EPI/ARI
and in the
Inter-Agency Coordination Committee Meeting

USAID/La Paz

August 15-30, 1988

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I. Executive Summary

The PVO/REC (Rotating Executive Committee) requested REACH technical assistance for the five-day Workshop for Technical Cooperation in EPI/ARI in Bolivia, 22-26 August 1988. The purpose of the consultancy was to serve as the EPI technical resource at the Workshop, which was attended by PVOs with CS grants and by MPSSP officials.

The writer provided the principal EPI technical support at the Workshop by designing the sessions and giving plenary presentations on the following topics: cold chain planning and management; injection and sterilization technologies; coverage evaluation surveys; and review of indicators for monitoring and evaluating EPI.

In addition, the writer assisted in the design of other sessions, particularly those on community participation and health education. The writer prepared new materials (including a "Checklist for EPI Supervision", a "Buyer's Guide to Selecting Refrigerators", an algorithm for giving health education, and a bibliographic list of reference materials in Spanish) which may be useful to the MPSSP and PVOs in the future. A field trip was made before and during the Workshop.

There was also an opportunity to attend an EPI Inter-agency Coordinating Committee Meeting. Throughout the consultancy, many opportunities were taken to advise MPSSP staff on EPI matters.

Key Findings:

- 1) The Workshop benefited from the able planning and commitment of the organizers and dedication of the participants.
- 2) PVO CS project staff and even MPSSP field staff are often unaware of MPSSP policy declarations and recent developments and crave technical knowledge of practical use.
- 3) The Workshop was a valuable opportunity for key MPSSP officials at various levels to interact with PVO staff to exchange experiences and initiate an on-going dialogue.
- 4) The PVO and MPSSP participants appeared to leave the Workshop with enhanced technical knowledge and with strengthened linkages between each other.
- 5) The PVOs unique strength, which needs to be fully harnessed by the MPSSP, is their ability to identify with and gain the trust and confidence of their communities.
- 6) To increase their contribution to EPI, the PVOs have identified their needs as being funds, technical support, training, coordination and information exchange.
- 7) It is probable that the PVOs do a better job of delivering services than of recording and documenting their achievements. The importance and ease of using readily-available routine service statistics for monitoring coverage and identifying problems has not generally been appreciated by many PVOs.

8) Recent coverage evaluation surveys have identified those districts where coverage is high or low, determined the reasons, and made recommendations for programmatic improvements.

Key Recommendations:

- PVOs should conduct annual community surveys (30 cluster, complete census, or 100 nearest households) to determine immunization coverage and to provide information on other questions for which routine data do not suffice (such as diarrhea morbidity, contraceptive usage, appropriate infant feeding, etc.).
- The MPSSP should analyze the results of the recent coverage evaluation surveys to determine the percent of children 12-23 months old fully immunized with all antigens.
- Future coverage surveys should question mothers of children aged 0-11 months, rather than children 12-23 months, to reflect more recent TT vaccination activities.
- The indications and contraindications to EPI vaccinations should be circulated by the MPSSP to every health worker involved in vaccination and to each faculty member in health training schools. The most frequently cited reasons during the survey for non-vaccination concern misperceived contraindications on the part of health workers and parents.
- PVOs should categorize and analyze their vaccination statistics (like the MPSSP) by age group 0-11, 12-35, and 36+ months using MPSSP forms.
- The MPSSP and PVOs should particularly monitor coverage of infants, the easiest and epidemiologically most important group to monitor. Coverage should be reported as the percent of eligibles, not targets, vaccinated. Each health facility should be aware of the number of eligibles and targets, and an Immunization "Road to Health" Monitor (Annex XI) should be used to track progress during the year.
- The MPSSP and PVOs should routinely use a few additional indicators, which have been overlooked in the past, to monitor missed measles immunization opportunities, early starters, and access.
- Since PVOs with AID funding have a need to know immunization coverage levels in their operational areas, the MPSSP should consider instructing its local staff to share the routine service statistics with the respective PVOs.
- The MPSSP and PVOs must stress in their health education material the need to completely vaccinate infants as early as possible during their first 12 months of age. Current MPSSP brochures picture mostly older children being vaccinated. Evidence suggests this is a major problem in the field.
- The PVOs have a role to play in training health workers to be better face-to-face communicators. In this, they can serve as a model for the MPSSP and international agencies, who tend to stress multi-media social communication efforts.

- PVOs which have the resources needed to ensure proper training should consider the merits of introducing steam sterilizers and reusable syringes and needles. The MPSSP officials have indicated their agreement.
- The MPSSP should include instructions on disposal of syringes and needles in the booklet "Vacunemos" and in other training materials. The message that a sterile syringe and sterile needle must be used for each injection needs to be stressed to ensure disposable equipment is not re-used.
- For safety reasons, childhood vaccinations in the buttocks should be discontinued, as globally recommended by WHO, in favor of vaccinating in the antero-lateral thigh. Present MPSSP policies essentially leave the choice of site to the individual health workers who continue to resist the switch. A clear MPSSP policy is needed for wide circulation.
- The MPSSP should explore the operational implications before adopting the WHO-recommended 5-dose TT schedule, including a possible revision of the TT card to reflect the 5-dose series. How to ensure the required minimum intervals during the four-month mobilization cycles needs to be considered.
- The MPSSP should update its last policy circular which states that TT is given during the 5th and 7th months of pregnancy. Health workers need to hear that TT is safe and effective during the first trimester and should be given as early as possible during pregnancy.
- Health education messages concerning neonatal tetanus prevention need to have a culture-specific focus to account for the varied understanding of the disease. Using the results of a recent USAID (REACH) study, health educators in the MPSSP and UNICEF need to create TT demand by exploiting areas of convergence between traditional and modern beliefs. The National Director of Epidemiology is presently supporting such an approach.
- The MPSSP should obtain and widely distribute a statement from the Catholic Church fully supporting TT vaccination of women to dispel rumors of sterilization. Remarks by His Holiness the Pope during his recent visit can be incorporated. High church officials, both male and female, should be photographed at immunization sessions.
- The Checklist for EPI Supervision, which was designed to structure the field visit during the Workshop, should be further reviewed and field-tested by the MPSSP and PVOs for eventual adoption.
- A copy of each of the reference materials (Annex VIII) should be compiled in a small lending library at the Coordination Program in Child Survival for reproduction and use by the PVOs. The bibliographic list should be circulated to all PVOs with CS grants.
- The Coordination Program in CS should first clear with the MPSSP and then distribute to the PVOs the "Buyer's Guide to Selecting Refrigerators" (Annex XVII) developed by the writer. The MPSSP should use the Buyer's Guide to select refrigerators for operational levels, since the present widely available Electrolux RC150T refrigerator is unable to freeze the icepacks needed to support an outreach strategy.
- Given the identification in a recent PAHO cold chain study of the MPSSP difficulties in meeting recurrent fuel costs and in providing field supervision, USAID should now seek MPSSP commitments before adding to the

burden by supplying more refrigerators. The Mission should consider funding a portion of the cold chain recurrent costs on a scheduled phase-out basis.

- The MPSSP should seek clarification from PAHO, since the amount and types of cold chain spare parts which a recent cold chain study recommended for procurement seem wholly insufficient.

- USAID should consider supplying the cold chain equipment (Annex XVI) recommended by PAHO. However, the Mission should await clarification from REACH regarding the suitability of two items: the Electrolux RCW65 refrigerator (which has been amended on Annex XVI to read "gas-operated") and the Pakistan Design Institute (PDI) soft box.

II. Acknowledgements

The writer acknowledges with gratitude all those persons from the Government of Bolivia, USAID, PAHO, PVOs and others who openly shared their ideas, experiences and resources. A special word of thanks goes to Ms. Beverly Tucker, Child Survival Fellow; Drs. Jorge Mariscal, Jorge Flores and Andres Bartos, MPSSP; and Mr. Peter Carrasco, PAHO. The participants at the Workshop are to be congratulated on their dedication and stamina.

III. Purpose of Visit

The PVO/REC (Rotating Executive Committee) requested that REACH and USAID/John Snow, Inc. make available, respectively, Mr. Robert Steinglass and Dr. Nils Daulaire to conduct the five-day Workshop for Technical Cooperation in EPI/ARI in Bolivia.

The Workshop objectives were to:

- develop a consensus about the indicators to be included in the basic health information system package being developed by the PVO/REC Secretariat;
- define basic health messages to be used by the PVOs and the MOH;
- oversee the beginning of the development of standard educational materials; and
- exchange ideas and information on policies; delivery strategies, including record-keeping and feedback; program planning; and lessons learned.

The writer served as the technical resource person for the Expanded Program on Immunization, while Dr. Daulaire was responsible for the Acute Respiratory Infections (ARI) component.

The writer's specific scope of work was to:

- Assist with the curriculum design for training health workers in conducting vaccination programs in collaboration with the MOH and USAID.

- Assist in the review and design of health education materials.
- Provide guidance in the selection of basic EPI indicators to be collected and used by the PVOs and provided to USAID and the MOH.
- Participate in a Workshop consisting of personnel from the PVOs, MOH, and USAID in which the consultant will be prepared to discuss:
 1. Practical field methods in conducting an EPI coverage survey.
 2. Program planning and delivering a package of health services.
 3. Methods of record keeping and follow-up.
 4. Cold chain micro-planning and management to develop continuous systems.
 5. Injection and sterilization technologies.
 6. Critical EPI health messages to be emphasized during the PVOs' project implementation.
 7. Methods to provide feedback to the community about EPI activities.
- Prepare written report in Spanish and English within 14 days of completion of assignment.

IV. Background

REACH has provided a series of consultancies at the request of USAID/La Paz since early 1987. A historical synopsis of REACH activities in Bolivia appears in Annex I. The present consultancy stems from the writer's two previous assignments.

In September 1987, the Bolivia Workshop on Monitoring and Evaluation of Child Survival Projects was conducted at Lake Titikaka under the auspices of the FVA/PVC Bureau of AID. A highlight of that Workshop was a list of resolutions for coordination and cooperation between PVOs and the Government of Bolivia to improve child survival operations and evaluation in Bolivia.

In January 1988, an operational program grant for a child survival (CS) PVO network was awarded to SCF (USA) to channel USAID PVO funds towards strengthened CS field operations and coordination over a three-year period. The grant states that TA will be provided in project and survey design, training, health education, communication and management information.

In February 1988, as part of a broader SOW, the writer met with members of the PVO/REC and suggested some possible subjects for a future PVO/MPSSP Workshop. Most of those themes were incorporated into the agenda of the present Workshop.

V. Trip Activities

The purpose of the consultancy was to serve as the EPI technical resource at the Workshop for Technical Cooperation in EPI-ARI at Lake Titikaka from 22 to 26 August 1988.

The Workshop was attended by eleven MPSSP officials from the central level and the Unidades Sanitarias, and by fifteen central and operational staff from nine PVOs.

Before leaving Washington, the writer collected materials in Spanish from PAHO, whose EPI staff were very helpful. In La Paz, the week of 15-19 August was devoted to preparing for the Workshop. This included assisting the Workshop organizers of the Child Survival office and the facilitators from INBUSTRADE with the design and technical objectives of the program.

The writer visited the head offices of six of the nine PVOs which were to attend the Workshop in order to inform himself of their technical resources, practices, interests and future plans. A field trip to three health facilities in an area three hours from La Paz was made to observe MPSSP and PVO operations.

Visits were made to national MPSSP officials to collect the most current training and health education materials and reporting forms. Their input on the desired content of the Workshop, consistent with MPSSP policy, was obtained.

The writer also contacted the PAHO office in La Paz and, with the consent of the Workshop organizers, invited two staff members to the Workshop. As PAHO had assisted the MPSSP in the execution of EPI coverage evaluation surveys (which were conducted for the first time in Bolivia in late 1987 with PL480 assistance upon the recommendations given during the writer's September visit), the writer shared with PAHO the session on conducting coverage surveys.

The writer provided the principal EPI technical support at the Workshop by designing the sessions and giving plenary presentations on the following topics: cold chain planning and management; injection and sterilization technologies; coverage evaluation surveys; and review of indicators for monitoring and evaluating EPI.

The writer shared some of these sessions with presenters from the MPSSP and PAHO. In addition, the writer assisted in the design of other sessions, particularly those on community participation and health education. The writer prepared new materials which may be useful to the MPSSP and PVOs in the future. A field trip was made during the Workshop to a MPSSP Medical Post and one of the Food for the Hungry Mother's Centers.

There was also an opportunity to attend an EPI Inter-agency Coordinating Committee Meeting. Throughout the consultancy, many opportunities were taken to advise MPSSP staff on EPI matters.

One final activity was a meeting with a REACH team of consultants who were completing their three-week medical-anthropological investigation of cultural perceptions of neonatal tetanus and acceptability of tetanus toxoid.

Complete lists of places and persons visited appear in Annex II and III.

IV. Results/Conclusions

A. PVO/EPI Activities

After interviewing the EPI representative of eight PVOs using a standardized questionnaire (Annex IV) and after observing PVO and MPSSP field activities in five sites, the writer was left with the distinct impression that PVOs in Bolivia probably do a better job of delivering services than of reporting or documenting their achievements.

Responses to a standardized questionnaire which the writer developed and administered were obtained in person from six PVOs in La Paz, one at the Workshop itself, and one through the mail. The results are summarized in Annex IV.

Disregarding any overlap in the operational areas of their CS projects, the PVOs by their own account cover a maximum of 10% of the total population in Bolivia.

PVOs are mostly involved in leading community discussion on EPI (eight positive responses out of eight PVOs); providing EPI training (7); transporting staff and supplies (7); and estimating coverage (7). They are also heavily involved in supervision of routine EPI activities (6); screening and registering eligibles before the periodic nationwide mobilization campaigns (6); following defaulters for vaccination (6); developing EPI health information systems (6); and collecting data on EPI target diseases.

Collectively, the PVOs propose to become even more involved in these same areas in the future. They also plan to increase their role in storing vaccines and monitoring storage temperature; collecting routine vaccination statistics; and in conducting coverage evaluation surveys.

The PVOs have until now been less involved in conducting coverage surveys, providing financial support in the form of per diems or gas to the MPSSP, and arranging community financing of EPI.

Although seven of the PVOs claim to estimate coverage levels in their service areas, the methods and indicators used vary considerably. One PVO estimates full coverage in all children less than five years old. Another considers coverage to be the proportion of children less than five years old who are vaccinated during the most recent mobilization. One does not disaggregate vaccinations by dose and age. Another makes some very complicated attempts to correct the denominator in children 0-4 years old over time - presumably to account for past achievement. In short, record-keeping and analysis is neither standardized nor, in many cases, particularly valid. The importance (and ease) of using routine service statistics to monitor immunization coverage, particularly in infants, has not been appreciated by many PVOs.

The PVOs' unique strength seems to be the ability to identify with and gain the trust and confidence of their communities. Most of them are committed to harnessing the energies of their communities and directing them to seek immunization. The areas in which the PVOs feel they can especially

contribute to the MPSSP in campaigns or in strengthening routine EPI activities appear in Annex IV. The PVOs stressed areas of cold chain and logistics, follow-up of defaulters, training and information campaigns.

To increase their contribution, the PVOs stated that the MPSSP would need to provide technical assistance and sharing of plans and policies. Training, coordination and exchange of experiences with other PVOs was desired. They seek funds, technical support, and cold chain training from USAID.

Financial and human resources were noted as limitations to establishing immunization activities in the short term.

B. Field Visits

Together with Eng. Cesar Sevilla Paz Soldan (Coordination Program in Child Survival), Dr. Stella Goings (Child Survival Fellow Program Manager), and Dr. Nils Daulaire (USAID/REACH), the writer visited vaccination sessions as part of the nationwide mobilization effort in Siripaca and Belen health posts. The former was a joint exercise by MPSSP and Freedom from Hunger staff. The latter was conducted solely by Freedom from Hunger. In general, the sessions were well organized with high turnout. Growth monitoring was done at the same time. The principle area needing improvement is health education during the face-to-face contacts. Most of the children being immunized were more than 12 months old. The team also visited Copacabana Hospital and interviewed the medical officer in charge.

The writer prepared the objectives of the field trip planned for day three of the Workshop (Annex V).

In order to structure the field visits, the writer designed a sample Checklist for EPI Supervision since none is in use by the MPSSP. The final version, appearing in Annex VI, reflects the few changes suggested by the Workshop participants after the field visit. In their daily individual written evaluations, the participants volunteered that the checklist was a very useful tool. A checklist is essential since without it "supervision" usually consists of nothing more than a series of administrative tasks - vaccine re-supply, submission of statistics, attendance records, etc.

With only a limited amount of time available in plenary, the results of the cold chain findings of the field visits of all five teams were summarized by the writer. The summary demonstrates how a checklist can be used by a higher level supervisor to quantify and target areas needing improvement (Annex VII).

C. Workshop Materials

EPI reference materials are listed in detail in Annex VIII as an aid to the Coordination Program in Child Survival for the future. The materials are divided into those handed out to each participant; those handed out to each PVO and to the MPSSP; those provided to the reference library at the Workshop; and additional useful reference materials. Those that are available in both Spanish and English are noted. At the time of preparing this report, a final Workshop agenda was not available.

D. Technical Inputs to Workshop

1. Cold Chain Planning and Management

After brief overviews on EPI in Bolivia by Lic. Lavadenz (EPI Chief) and on polio eradication by Dr. Percy Halkyer (PAHO), the writer challenged the plenary with a question to be answered at the end of the session: "How can you know if vaccines exposed to high temperature can continue to be used?"

In small working groups, the participants identified their cold chain problems. These were then combined on a master flip chart in plenary session and will be presented by the Coordination Program in Child Survival during the final report of the Workshop.

Dr. Flores quickly reviewed the functioning of the cold chain in Bolivia. He presented various resource materials, including vaccine carriers, icepacks, thermometers, cold chain monitors, and a flip chart produced by PAHO for use in cold chain training.

The writer continued by introducing other resource material not previously known by most of the participants. These materials appear in Annex VIII.

The writer stressed that the cold chain consists of more than just equipment. Trained people are needed to manage it effectively. Now that more PVOs are planning to become involved in vaccine storage and handling, one must stress that establishment of a continuous uninterrupted cold chain is much more difficult than the sporadic cold chain requirements of the periodic national mobilizations, with which everyone is familiar.

Efforts to improve the cold chain must be directed first at higher levels where larger quantities of vaccine could be affected by a cold chain break. Also, it is easier to solve cold chain problems which occur at higher levels.

Since the cold chain is always more fragile at peripheral levels, it is important to resist the temptation to overstock vaccine. Too much vaccine in one place may mean too little elsewhere. Some of the vaccine may expire before it can be used. A stock rotation system utilizing the principle "first in - first out" is important to ensure that individual vials are not repeatedly exposed to cold chain failures.

The participants were asked what they would investigate in the event that ten children previously immunized against measles developed the disease in their communities. This stimulated a discussion of the cold chain requirements of measles, as well as other vaccines.

Finally, the participants were requested to answer the question presented in plenary. Many correctly explained that the question could not be answered without knowing many factors, including duration and temperature of exposure and the vaccine in question. An exposure to 40 degrees celsius for one hour in the case of freshly produced polio vaccine may not destroy the vaccine (although any such exposure is always harmful). However, the same exposure could destroy whatever potency remains in a soon-to-expire polio vial. There is no way for field staff to know whether a particular

exposure has destroyed the vial. The only way to ensure potency is to practice good cold chain management, which includes carefully monitoring storage temperatures at every level of the cold chain.

2. Injection and Sterilization Techniques

The writer reviewed why the antero-lateral thigh is preferred for reasons of safety over the upper-outer buttocks as an injection site in small children. MPSSP policy in this regard was confusing. MPSSP officials explained that the buttocks can continue to be used by vaccinators who know the correct placement; whereas vaccinators who do not know the correct placement should inject in the thigh. It seems unlikely and impractical that MPSSP staff are systematically evaluating present technique and assigning vaccinators to one or the other category. Instead, the choice is being left to the individual health worker and apparently most are continuing to resist the switch to the thigh.

Dr. Flores reviewed the advantages and disadvantages of different injection equipment including disposable, reusable and jet injector technologies. A sterile syringe and sterile needle must be used for each injection.

If disposable equipment continues to be used in Bolivia, the MPSSP must ensure that syringes and needles are not reused. The booklet "Vacunemos" should include instructions on disposal. Interestingly, in the San Pablo Medical Post during the Workshop field visit, the auxiliary nurse remarked to Dr. Flores that disposable syringes and needles are not discarded. In the event that supplies were insufficient, they might be reused on the next mobilization.

The writer informed the PVOs that the MPSSP had no objection to PVOs introducing steam sterilizers and reusable syringes and needles. PVOs have the resources needed to ensure proper training, which is essential upon the introduction of a new technology.

3. Coverage Evaluation Surveys

After a brief introduction by Dr. Flores, Dr. A. Fishmann, a visiting PAHO consultant, presented the results of "ENCOVA 1987"-the coverage evaluation surveys done in late 1987 throughout the country. (A discussion of the methodology and preliminary results of these surveys was presented by this writer in the report, "Annual Review of EPI Plans in Bolivia, 1988"; USAID/ La Paz; February 1988, pp. 22-27.)

The survey results apply to 89% of the total population. Vaccination coverage in urban areas by antigen/dose ranges as follows:

BCG:	56% to 81%
Measles:	50% to 84%
DPT3:	42% to 78.5%
Polio3:	41% to 78%

The range in rural areas is as follows:

BCG:	32% to 53%
Measles:	45% to 58.5%
DPT3:	22% to 36%
Polio3:	23% to 37%

Detailed information has been analyzed for each of the 30-cluster surveys separately. Analysts have identified those districts where coverage is either low or high, determined the reasons, and made recommendations for programmatic improvements.

The writer believes that more sophisticated analyses of cards (with dates of birth and vaccination) to determine missed opportunities, delayed immunization starts and prolonged intervals cannot be done. This is because cards have only recently been introduced and were not used at all during previous campaigns. Even when a card was present, it might have contained only a partial history of vaccinations received.

The writer believes that it would be useful to report the data according to percent fully immunized with all antigens at any age in the first two years of life. For reasons mentioned above, it does not seem possible to disaggregate the fully immunized children by the age group 0-11 months. An interesting exercise would be to determine for each district the coefficient of under or over reporting of the routine data based on the survey results.

The survey has revealed very important data on reasons for non-vaccination. In nearly all areas, the most important reasons offered by the parent for incomplete or non-vaccination were that the child was "ill and not brought to be vaccinated" or "ill, and denied vaccination by the health worker." Health education messages to the general population and to health workers are needed. The articles on indications and contraindications to EPI vaccinations (Annex VIII A) should be circulated by the MPSSP to every health worker involved in vaccination and to each faculty member in health training schools, along with the MPSSP's own policies.

Dr. Fishmann and this writer discussed, in turn, the methodology of conducting coverage surveys, which is more thoroughly described in a Spanish handout (Annex VIII B) and in a new English revision of the "Evaluate Vaccination Coverage" module (Annex VIII D). The writer stressed that the best age range to survey was children 12-23 months old, since most children 0-11 months old have not yet had time to complete all required vaccinations.

Two weeks is needed by two two-person teams to complete a survey, with more time required in sparsely settled areas. Approximately 40 houses must be visited in each cluster. A supervisor is needed. Usually, one day of theoretical and one day of practical training is required. Analysis can be completed "by hand" in one to two days. Use of two teams versus thirty teams, for example, will result in less inter-team variation and allow supervisors to catch and correct mistakes early in the survey. As only 210 children (7 in each of 30-clusters) must represent a larger universe, questions must be asked carefully and consistently without bias in selecting the children.

The writer explained that two 30-cluster surveys would be needed if a PVO wanted either to compare coverage in two different geographic areas, or according to two different strategies, or according to the age of two CS programs. It is statistically invalid to compare results of individual clusters within one survey.

PVOs were encouraged to conduct a survey to answer many questions - not just to determine immunization coverage. Regarding immunization coverage in areas where complete vaccination cards have been in use, results should be analyzed to obtain the percent of children fully immunized by twelve months of age - as this data is unavailable from routine service statistics. Given doubts about the denominator of eligible children in their service area, community surveys are essential to estimate coverage.

The writer discussed some special consideration applicable to PVOs. If the universe to be surveyed covers less than a 10,000 population, it would be simpler and result in less sampling error to survey each house - i.e., to do a complete census.

PVOs without the time or resources to do a 30-cluster survey were encouraged to conduct a "nearest 100 households" survey around each of their health posts or mothers' clubs. Two days would usually be sufficient. The data frequently come as a shock to the health worker, which motivates him to improve coverage. The same questionnaire used on a 30-cluster survey can be used.

The writer was requested by the MPSSP to discuss new developments in neonatal tetanus control. He explained the WHO 5-dose TT schedule and distributed a hand-out (Annex IX) showing the minimum interval between doses and duration of immunity after successive doses. It was stressed that TT is safe and effective and should be given as early as possible during pregnancy.

PVOs were told that vaccination coverage surveys should always question the mothers (of children currently 0-11 months old) about how many TT doses they ever received before the birth of the child. It is incorrect to ask about TT received only during one particular pregnancy, since mothers do not necessarily require two doses (or even one dose) with each pregnancy. Questioning mothers of infants 0-11 months old gives a more recent picture of TT immunization activities than questioning mothers of children aged 12-23 months at the time of the survey.

4. Indicators

The writer emphasized that monitoring and evaluation must be a routine part of immunization program management to improve implementation and to guide action. An information system is needed to measure whether program objectives and targets are being met. The information thus generated should be of practical local use to enhance staff motivation and to encourage continued collection of data.

The writer distributed a packet of forms used by the MPSSP to collect routine service statistics.

Frequent areas of confusion in data collection, reporting, and analysis were reviewed. These include:

- Age is not categorized by 0-11, 12-23, 24+ months;
- Percent of target achieved is reported, rather than percent of eligible population;
- DPT, polio and TT are not reported by dose; and
- Eligible infant population for measles immunization is considered to be 1/4 of that for DPT, polio, and BCG, rather than being the same.

There are limitations in the use of routine data for evaluation of impact. These include:

- absent, incomplete, doubtful data
- uncertain denominator
- output does not predict impact (i.e., the number of vaccinations may not correlate with the reduced incidence) due to:
 - cold chain problems
 - inappropriate dose
 - inappropriate age at time of vaccination
 - vaccine efficacy less than 100%
 - child already immune at time of vaccination

Despite these limitations, managers can learn a lot about their programs by collecting and analyzing their routine data.

In small groups, the participants were requested to list their EPI indicators presently in use and those proposed. Their lists were compiled and appear in edited form in Annex X along with the writer's comments on the source for the data. In plenary, the writer reviewed the indicators in terms of which level collects the data, how or where the data is obtained, how frequently the data should be collected, and how to use and feedback the data.

The discussion highlighted the difficulty in using service statistics to calculate coverage in children older than 12 months of age, since coverage in these older groups depends on vaccinations administered over more than a single year. The easiest and most important age group to monitor are infants, a cohort which renews itself annually.

Another interesting finding was the difference of opinion among the participants when presented with a concrete hypothetical example: "In 1986, 100,000 babies were born. The EPI succeeded in immunizing only 25,000 with DPT/Polio 3. For 1987, the managers establish a DPT 3 target of 50,000 infants. In 1987, 40,000 infants actually receive DPT 3." When asked what was the infant DPT 3 coverage for 1987, the answers included 20%, 40%, 65%, and 80%, with most answers being 40% (correct) or 80%. This example illustrated a classic mistake, whereby achievement (40,000) is compared to targets (50,000) rather than to eligibles (100,000).

The writer distributed a simple "Immunization Road to Health Monitor" to measure vaccination achievement during the year, rather than to await the year's end to learn that the program was not on track. (Annex XI) This monitor has been re-designed from the standard WHO version to reflect the important difference between the eligible and target populations.

The writer handed out a summary of EPI indicators, including those required by USAID (Tier One), those recommended by USAID (Tier Two), those required by USAID for final project evaluations, additional indicators proposed by the MPSSP, and other important indicators recommended by the writer. (See Annex XII.) The source of data for each indicator and the method of computation was included. In practically every case, the data are readily available from the routine EPI form 8A (Annex XIII).

The writer presented the FY 1988 USAID Tier One compulsory data reporting requirements. These are basically numerator data and are the absolute minimum data required. PVOs should not feel that collection of this data is sufficient for program management.

The criteria for inclusion of Tier Two indicators were presented. Participants were informed that the indicators were specifically designed so that an adequate sample for each indicator could be obtained using the same 30-cluster vaccination coverage survey technique.

Final CS I project evaluation indicators were presented, since it is likely that other CS projects would also be expected to provide data on these indicators. An additional MPSSP indicator was modified and presented. Originally, the denominator had been "number of pregnancies". This was changed to "number of live births", since the number of pregnancies is unknown.

Finally, the writer presented three indicators which are often overlooked, but which are quite important. Missed measles immunization opportunities occur for a variety of reasons in many countries, including a reluctance to immunize the same child with all antigens simultaneously, reluctance to open a vial for a single eligible child, and denial of vaccination to a child due to a verbal history or prior measles. In most countries, measles immunization coverage lags considerably behind coverage with other antigens. All children 12-35 months old eligible for DPT1 (denominator) are also eligible to receive measles vaccination (numerator). Many children receiving DPT2 or DPT3 also need measles vaccination. Therefore, if this indicator is less than 100%, there is a problem of missed measles immunization opportunities.

The next indicator monitors the EPI's ability to attract children early in life. The number of infants receiving DPT1 (numerator) is compared to all children receiving DPT1 (denominator). Evidence in Bolivia suggests a serious problem in attracting children before the age of 12 months.

Finally, access to immunization is monitored by comparing infants receiving Polio 1 (numerator) to all live births (denominator). BCG can be used in countries where it is generally the first vaccine to be given (not the case in Bolivia).

5. Health Education Messages

The writer distributed health education materials he had collected at PAHO in Washington. In small groups, the participants were asked to evaluate the materials critically. This whet their appetite for the rest of the session. To start with, he pointed out that in the two MPSSP pamphlets present ("Vacunemos" and a pamphlet on each disease beginning with measles), approximately ten children were shown receiving vaccinations--yet only one was less than 12 months of age, with some being five years or older. This gives the wrong message to health workers.

The writer presented a scenario familiar to anyone who has spent time in the field. The vaccinators arrive bearing non-specific promises of health for the children. They say that the injections will make or keep the children healthy rather than protect them against specific named diseases. Or they say that the children will not have a rash or a sore throat or a cough, rather than speaking of measles, diphtheria or pertussis. They intersperse their speech with foreign words and abbreviations like DPT, BCG, and tetanus. Finally, they leave. That night, rather than a healthier community, every second infant is crying with a slight fever or discomfort at the injection site.

Health workers need to be taught to be better communicators. In this, the PVOs generally have much to teach the Government health sector. Generally, in many countries, too much effort is spent to produce expensive, glossy materials (for which the level of effort and funds usually cannot be sustained), while less attention is paid to that most important contact: the face-to-face message from the health worker.

An algorithm, which illustrates the role of health facilities in screening each child's vaccination status at every opportunity and in vaccinating or referring them for vaccination, is shown in Annex XIV. It also gives a sample health education message which the PVOs may like to adapt.

Special health education messages for health workers include (reference : La Force, et al., World Health Forum, Vol. 8, 1987):

-Immunize as early in life as possible.

Age	Vaccine
Birth	OPV & BCG
6 weeks	OPV & DPT
10 weeks	OPV & DPT
14 weeks	OPV & DPT
9 months (270 days)	Measles

-Minimize the intervals between immunizations.

-Immunize children with minor illnesses or malnutrition.

-Provide immunization at all health facilities where eligible children and women are cared for.

-Immunize every eligible individual, even if it means opening a new vial of vaccine for only one child.

Additional materials which may be useful to PVOs include "The Challenge" from Rotary International (with a section on creating the demand for immunization) and UNICEF/WHO's "Universal Childhood Immunization 1990: How to Accelerate EPI" (with sections on how to conduct a KAP study and focus group research).

6. EPI Quiz

Although a pre-test had not been given, there was interest in conducting a post test. The quiz with its results appears as Annex XV.

Questions #5 and #9 were not understood by the majority of participants. For the former, the participants named an advantage of using disposables, rather than mentioning the need to ensure their destruction after a single use. On question #9, the participants all responded on the merits of using 30-clusters, rather than on the broader utility of the survey itself.

Two questions in particular merit the continuing attention of the MPSSP. A common misperception (question #2) is that it is better to supply lower cold chain levels with large amounts of vaccine less frequently (because of convenience or available unused storage capacity), than smaller amounts less frequently. This could be a serious problem as the MPSSP plans to establish continuous vaccine storage for routine EPI at lower cold chain levels, as compared to the present episodic large supply at the time of mobilization.

The responses to Question 11 indicate that the MPSSP has to convince health workers about the safety and efficacy (and wisdom) of administering TT to women even during their first trimester of pregnancy.

E. Interagency Coordination Committee Meeting

1. Neonatal Tetanus

The above meeting was attended by representatives from PAHO, UNICEF, USAID, the Coordination Program in Child Survival, Rotary and the MPSSP.

REACH consultants Dr. Velasco and Mr. Palazuelos, who together with Dr. J. Bastien conducted the medico-anthropological study on cultural perceptions of neonatal tetanus, were invited to present their preliminary findings in the three ecological and cultural regions visited.

Briefly, the Tupi Guarani ethnic group of Santa Cruz are very familiar with neonatal tetanus and consider it the result of bad air (miasma) which enters the body through the umbilicus at the time of delivery. Health education messages can build upon this understanding.

The Quechua are less familiar with neonatal tetanus and attribute the symptoms to a wider complex of symptoms caused by bewitchment. Because they do not consider it a physical disease, they do not take babies suffering from neonatal tetanus to the health facilities. Therefore, the team members will try to formulate health education messages which converge with the more difficult symbolic etiology of the Quechua.

The Aymara are mostly unfamiliar with neonatal tetanus, although the team documented two indigenous cases. The Aymara consider the disease a type of Jinchi Qanu, a broad type of spirit possession which strikes the child to

punish the parents. Therefore, they do not like to talk about cases--especially since community calamities are attributed to Jinchu Qanu in an unbaptized child. Health education messages may need to stress that a package of immunizations is needed to prevent one fatal form of the disease. Or, possibly, the message needs to stress community protection through vaccination of women with TT.

The Quechua and Aymara ethnic groups have broad, non-specific complexes of symptoms which include those of neonatal tetanus, such as failure to suck and rigidity. Care will need to be taken to design messages which focus on preventing one severe type of "Jinchu Qanu" (in the case of the Aymara) or of "Layqarido" (in the case of the Quechua); otherwise, promises of protection against the broader complex of symptoms are doomed to lessen the credibility of the EPI.

In one area during the last mobilization round, a community group loosely connected to the Catholic Church spread rumors that women were being sterilized with TT. Even so, apparently many women accepted TT in hopes that it was for family planning. (This misconception can also damage the credibility of the EPI.) For the next mobilization, it would be useful for the MPSSP to obtain the full backing of the Catholic Church. Female family members of prominent Church officials could be pictured receiving TT.

Although there may be little tetanus in the altiplano (though possibly more than believed), the Aymara migrate seasonally and deliver in any ecological zone. For this reason, the MPSSP has targeted all areas of Bolivia for TT immunization.

The team reported that physicians are not trained about or familiar with neonatal tetanus in some cases. One physician believed a case to be neonatal septacemia.

The team recommended that August not be the month of the second mobilization. The incidence of acute respiratory infections is highest in August and there is a strong temporal association with vaccination. Also, August is a month of many holidays.

To familiarize the National Director of Epidemiology with the latest policies concerning the 5 dose TT schedule, the writer gave him some material printed by WHO in Geneva and Washington. The MPSSP will need to consider the operational implications before introducing a 5 dose schedule, including how to ensure the required minimum intervals during the four-month cycle of mobilization.

A second presentation on the findings was given at PAHO. There was some doubt as to the methods of the survey. The survey was an attempt to gain deeper insight into the understanding of the people interviewed in selected communities. It used qualitative social science methods unfamiliar to practitioners of the "hard sciences". There had been no attempt to derive a representative sample. The effort had been taken to establish trust and rapport with the respondents.

Dr. Mariscal suggested that in the future health education messages concerning neonatal tetanus prevention will need to have a regional and culture-specific focus to account for the varied understanding of the disease.

The writer feels that persuasion will not succeed in reaching a high vaccination coverage. Health educators in the MPSSP and UNICEF will need to find areas of convergence between traditional and modern beliefs to create demand for TT.

2. Review of EPI annual Plan of Action

Dr. Mariscal explained that PL480 funds had not yet begun to flow and that there had been some confusion in the availability of Rotary funds for the purchase of polio vaccines. USAID funds from the recently signed Community and Child Health Project were expected to begin flowing shortly after some simple formalities. Of the \$22 million bilateral agreement, USAID is contributing \$15 million and the GOB the remainder. About \$3.5 million will be used for EPI nationwide, \$2 million for control of diarrheal diseases, and an unspecified amount for water and child survival projects in 11 rural districts.

So far this year, UNICEF and PAHO funds have been supporting the GOB in the EPI. Tetanus toxoid has been difficult to obtain in sufficient quantities. Until the MPSSP knows for sure that adequate numbers of disposable syringes and needles can be made available in time for the October 24th start of the third round of the mobilization, the MPSSP is delaying public announcements.

In regard to the plan for social communication, two messages need to be reinforced: the importance of immunizing children before 12 months of age and the need to vaccinate ill children. Fifty percent of fully immunized children in a recent coverage evaluation survey in Cochabamba were more than 12 months old. In addition, the most common cause for non-vaccination in the recent nationwide coverage surveys was illness in the child. The writer suggested that the two articles (see Annex VIII A) on indications and contraindications to vaccination be circulated to all health workers in Bolivia.

3. Cold Chain

The MPSSP representatives at the ICC explained that the GOB planned to strengthen the cold chain initially at higher levels and down as far as the districts. This is a wise decision given the relatively greater importance of having a well-functioning cold chain at higher levels, where larger quantities of vaccine are affected in case of an interruption. Also at higher levels, cold chain problems are generally easier to solve.

An important new development is that the MPSSP is prepared to respond to requests for cold chain equipment from PVOs (through the Coordination Program for CS) and from the Social Security network of health facilities. The MPSSP will provide equipment from existing government stock and is able to provide thermometers, as well. The MPSSP intends at the same time to supply syringes and needles, corresponding to the number of vaccine doses distributed.

It was agreed that the MPSSP would communicate in a memorandum their plans for PVO involvement in the cold chain, including clarification regarding who will be responsible for supplying spare parts.

In June, PAHO consultants completed a major cold chain inventory in Bolivia. For each health facility, information was collected by completion of a questionnaire on the following subject areas:

- o Model of cold chain equipment present
-refrigerator -freezer -ice pack freezer -vaccine carrier -cold box -ice packs -thermometer
- o Condition of refrigerators
- o Reason for poor refrigerator condition or disuse
- o Volume of refrigerator
- o Source and regularity of energy
- o Cost of energy to run cold chain
- o Cost and time to reach furthest distance to administer vaccines
- o Ambient temperatures
- o Population of service area (and by selected age groups)

This last factor was used to determine the volume of vaccine needed to be stored, given a presumed periodicity of re-supply.

Nearly 70% of the 100 districts in the country were visited during the three-month study. According to the study, the information generated on each health facility will need to be verified by the respective facility and updated periodically as part of the cold chain management system.

An interesting finding is that a much higher proportion of kerosene-operated refrigerators are out of service than gas or electric operated ones. This is consistent with findings in other countries. However, judging from the models of refrigerators, part of the reason could be due to the older age of the kerosene equipment. Even so, many of the kerosene refrigerators are repairable and a list of needed spare parts has been prepared. The study recommends the conversion of kerosene refrigerators to run on gas, in part due to the high cost and limited supply of kerosene.

For each health facility, several criteria were used to select the make of needed cold chain equipment, including:

- o ambient temperature
- o availability of electric energy
- o ice-making needs
- o volume of vaccine to be stored
- o maximum cold chain life needed for vaccine transport to furthest site

- o price
- o availability of fuel

A major assumption is that the MPSSP will meet through its own or external resources the recurrent cost requirements for fuel. The study found that many health facilities are unable themselves to pay for gas or kerosene, and so the refrigerator goes unused. The study does not comment on whether health facilities are able to cope with electricity bills.

However, requirements for cold chain equipment also depend on the human resources available and the frequency with which vaccine can be administered on an outreach basis. These are local factors which ideally need to be considered to match the correct equipment to the particular local needs. It would have been useful to know the actual (or potential) number of vaccinators with a need for ice and vaccine carriers operating on the same day from the same facility. This has important implications for the required ice-making and ice-storing capacity of refrigerators.

The study correctly concludes that each King-Seeley vaccine carrier should have two sets of ice packs (one set in use in the field while another is being frozen). However, simply supplying another set of ice packs for each existing vaccine carrier is not an appropriate solution in the case of the majority of peripheral facilities which now rely on an Electrolux RC150T refrigerator. This refrigerator is unable to operate as a refrigerator and at the same time make ice packs. In other words, there is no freezer compartment in which to make ice packs, unless one were to lower the thermostat to such an extent as to turn the entire refrigerator into a freezer. In fact, this would be a solution, but shifts the cold chain problem to one of close management to ensure that DPT and TT are kept in a vaccine carrier with a constant supply of ice packs, rather than in the freezer.

It is not clear what type of refrigerator the MPSSP or the study eventually proposes for the peripheral areas of the cold chain. One unit which should be seriously considered for some areas where electricity exists more than 12 hours daily is the new Electrolux TCW 1990 (E 3/62) which is a small ice-lining unit capable of making and storing enough ice to enable up to 10 RPSs with ten King-Seeley vaccine carriers to vaccinate simultaneously, day after day.

The study does not discuss the routine system for or costs associated with vaccine ordering between the various levels. How are vaccine supplies determined? Based on a fixed quota of vaccines? Based on a consideration of present stock, past usage and expected demand? Based on catchment population? Is vaccine collected from or supplied by higher levels? How frequently on their visits did the study team observe an oversupply or undersupply of vaccine or the presence of expired or soon-to-expire vials? (During this writer's single visit to a health facility with a cold chain, he found expired vials, an over-stock, and too many vials expiring within the month of the visit. All the vials were mixed without any order in vaccine carriers without ice, because the RC150T refrigerator had been registering freezing temperatures. The thermostat had not been raised.) Is limited availability of funds to cover frequent vaccine re-supply leading to over-stocking of vaccines at more vulnerable peripheral levels of the cold chain?

The study correctly stresses the need for a permanent supervisory system.

The cold chain system and requirements of the Social Security Health facilities still needs to be studied.

The study recommends the purchase as soon as possible of about 270 refrigerators. This seems a reasonable number, but their simultaneous arrival will overwhelm the capacity of the MPSSP to store and distribute them. Also, given the identified difficulties in meeting recurrent costs for fuel and the lack of supervision, it seems prudent to inquire first as to MPSSP plans and commitments before external donors add to the burden by supplying more refrigerators.

As mentioned in this writer's report of his February visit, the recurrent cost implications of large capital expenditures must be considered to avoid hasty decisions and poor programming. The Mission should consider funding a portion of the cold chain recurrent costs on a scheduled phase-out basis, providing the GOB moves towards shouldering an increasing share of costs. Such recurrent cost support would have higher development impact than additional new investments and, in the Bolivia context, generally satisfies the criteria laid out in "AID Policy Paper: Recurrent Costs" (PN-AAM-319, 1982).

In regard to spare parts, the study has provided a useful list. But the value to be ordered is only \$9,400 over a five-year period, or less than \$2000 per year. The value of the refrigerators proposed for immediate ordering is about \$200,000. On top of this are the many hundreds of refrigerators already in use. It seems that a much larger quantity of spare parts should be ordered.

Some of the cold chain equipment models recommended by the study (Annex XVI) have been dropped (or never were included in the first place) from the WHO/UNICEF Cold Chain Product Information Sheets, 1988/89. The writer was requested by the ICC to clarify with PAHO why items no longer recommended by WHO/UNICEF are being proposed. It is possible the team did not have access to the most recent product information sheets, which only were published recently, and had to rely on the 1986/87 edition. Or possibly, the team is familiar with Latin American manufacturers' equipment which may perform well but has never been listed. Questions concern equipment from Iberna, Consul, Pakistan Design Institute and Silfe.

Also, it is unclear why one particular refrigerator and freezer model, Electrolux RCW65, is recommended at all. The Sibir S2323, which is already being ordered, performs much better, costs only 40% of the RCW65, uses only slightly more fuel, and has the option of running on electricity as well as gas.

The writer has prepared a "Buyer's Guide to Selecting Refrigerators" (Annex XVII) to guide PVOs or the MPSSP in selecting refrigerators appropriate for the local strategy (static, little outreach, or busy outreach) and for the availability of energy (continuous 24-hour electricity; at least 12 hours electricity daily; at least 8 hours electricity daily; gas).

VII. Recommendations

See the "key recommendations" listed in the Executive Summary (Section I).

VIII. Follow-up Action Required

- REACH will seek clarification from PAHO on a few items of cold chain equipment which they recommended (Annex XVI). REACH will communicate the results to USAID/La Paz.
- The MPSSP will communicate in a memorandum their plans for PVO involvement in the cold chain including clarification regarding who will be responsible for supplying spare parts.

ANNEX I

Historical Synopsis of REACH Activities in Bolivia 1987 - 1988

Summary

REACH has been engaged in a series of short-term technical assistance assignments since early 1987. These assignments have been instrumental in guiding USAID/La Paz in its involvement in and long-term commitment to the national EPI for the years 1987-1991. REACH consultants have been involved in each step of the planning process in the development of a new bilateral US\$15 million Community and Child Health Project, including an initial epidemiological assessment, PID development, and preparation of the project paper.

USAID has begun to call upon REACH to provide technical assistance for some of those activities which USAID agreed to support during the regular Interagency Coordinating Committee meetings. In addition, REACH has provided on-going technical assistance to PVO's during two workshops and as part of other broad TDYs.

Given the consistent focus and purposeful pattern of these short-term technical assignments, REACH believes that its past, present, and projected involvement in Bolivia constitutes, and should be recognized as, a long-term intervention.

History of REACH Activities To Date

REACH began providing technical assistance to Bolivia in February 1987 following the suggestion of Dr. C. de Quadros, PAHO Regional EPI Adviser, in October 1986, during the first REACH Technical Advisory Group Meeting. In response to a request from USAID/Bolivia, REACH provided two consultants to assist in evaluating epidemiological, organizational and financial aspects of a proposed acceleration of the Expanded Program on Immunization (EPI) in Bolivia. The two REACH consultants, Immunization Specialist Dr. Ernesto Guerrero and Health Services Financing Specialist Dr. Judith Williams reviewed the Bolivian National Plan of Action and assessed the feasibility of its implementation, gathered and evaluated cost data, and made recommendations to USAID/Bolivia. The consultants also attended the annual meeting of the EPI Interagency Coordinating Committee (Bolivia), which brought together GOB, PAHO, UNICEF, Rotary and USAID to review the Plan of Action for 1987-1991. The consultancy resulted in the development of a revised and detailed plan of action for 1987, and the development of more general plans for 1988 through 1991. The MOH also made a commitment to complete a comprehensive, revised Plan of Action for 1988-1991 by April 1987 and to survey its capital resources.

REACH continued its assistance to the EPI/Bolivia following a request from the FVA/PVC Bureau to send an EPI specialist to serve as a resource person at a PVO Child Survival Bolivia Country Workshop, hosted by USAID with the cooperation of Planning Assistance (Bolivia). This workshop was held September 15-18, 1987 at Lake Titicaca, Bolivia. REACH Senior Technical Officer Mr. Robert Steinglass gave presentations at the plenary and special interest sessions on monitoring and evaluation of immunization activities at the community level. In addition to presenting technical discussions at the workshop, Mr. Steinglass also participated in pre-workshop planning and lesson preparation in La Paz from September 10-14 and a post-workshop evaluation on September 19 in La Paz.

Following the workshop, USAID/Bolivia requested LAC Bureau and S&T/H to extend Mr. Steinglass' TDY in Bolivia for five working days to prepare the groundwork for an epidemiological situation analysis as part of the Mission's formulation of the Child Survival Country Strategy (CSCS). Mr. Steinglass also explored with Ministry of Health officials possible implementation of a neonatal tetanus mortality survey and coverage evaluation surveys, and catalyzed action by all donors towards signing a Memorandum of Understanding in support of the Government's EPI National Plan of Action, 1987-1991.

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A detailed epidemiological assessment of Bolivia was conducted by a four-person REACH team from October 1, 1987 through November 4, 1987. This assessment was done in anticipation of a new bilateral Community and Child Health (CCH) Project which was to have a strong EPI component. Two of the team members, Dr. Jorge Mariscal and Dr. Javier Torres Goitia C., are Bolivian nationals and may serve as resources to both the MOH and USAID/B during the implementation of the child survival activities framed by the study. Other team members included Dr. Duncan Pedersen, team leader, and Dr. Claude Betts. The purpose of the team consultancy was to: 1) establish general guidelines for the development of a child survival project appropriate for the country's epidemiological, socio-economical and cultural reality; 2) identify major health issues related to child survival from the review of available secondary data sources and field visits to selected sites; 3) analyze and identify priorities for action, utilizing an epidemiological and social approach; and 4) provide input for a plan of action in order to facilitate the development process for child survival projects. The resulting document entitled, "Child Survival in Bolivia: Current Status and Priorities for Action" was distributed in Spanish and English. It was a useful analysis for health planners of the new CCH Project and will be an important resource for years to come.

REACH further assisted with the development of this Community and Child Health Project in a consultancy performed in November 1987. In response to a request from USAID/Bolivia, REACH provided a health educator/PHC specialist, Rose Schneider, to participate in a Bolivian national and USAID team effort in preparing a PID for the CCH project. The PID supports and seeks to develop the Bolivian MOH regional health system's capacity to implement child survival interventions; specifically immunizations, diarrheal disease control, acute respiratory infection, nutrition and high-risk pregnancy and delivery programs, and health management strengthening. The immunization intervention is the only selected intervention planned to have nationwide coverage. All other interventions will focus on selected regions. The CCH project will be funded by a US\$15 million, five-year grant to the GOB.

On February 17-19, 1988 REACH Senior Technical Officer Mr. Robert Steinglass and consultant Dr. Claude Betts represented USAID health staff at the 1988 meeting of the EPI Interagency Coordinating Committee. GOB, PAHO, UNICEF, Rotary and USAID reviewed the most recent progress of the EPI National Plan of Action for 1987-1991 and identified specific activities and funding arrangements for 1988. It was agreed that USAID will be involved more broadly in all areas of EPI rather than solely in the provision of commodities for the cold chain and supervision, as previously planned. USAID's support to the EPI National Plan of Action will come from US\$3.3 million of the US\$15 million CCH Project. According to the Plan of Action, USAID will support the development of neonatal tetanus mortality surveys and a medical-anthropological study on cultural perceptions and practices concerning neonatal tetanus. During their TDY, Mr. Steinglass and Dr. Betts also reviewed MOH EPI coverage evaluation survey data which were collected in 25 urban districts in October and November 1987. These surveys were funded by AID PL 480 and the Bolivian government based on recommendations during Mr. Steinglass' earlier visit in September 1987. The consultants also worked with the MOH to draft a SOW for the long-term CDC Technical Advisor for Child Survival to be posted in La Paz by AID. They provided cold-chain technical assistance to SCF (USA) in order to expand their immunization service delivery. Finally, discussions were held with the PVO Rotating Executive Committee to determine PVO technical assistance needs in the field of immunization.

As a continuation of REACH's support to the development of a project paper (PP) for the new CCH project, a REACH economic/financial analysis consultant, Dr. Robert Robertson, joined the international PP team and assisted in the preparation of the economic and financial elements. Dr. Robertson also drafted recommendations to the team concerning information needs under the Project and research and evaluation ideas, especially of an economic nature (eg., a proposed study of certain financing sources, including revolving drug funds and cash payments for certain services.)

In accordance with USAID's commitment, made at the aforementioned EPI Interagency Coordinating Committee Meeting, to conduct a medical-anthropological study on neonatal tetanus, REACH provided a three-person team, headed by a medical anthropologist, to study the cultural perceptions of neonatal tetanus in Bolivia and the programming implications in Aymara, Quechua, and Spanish-speaking communities. This study was conducted

August 2-27, 1988. The study will be of practical use to inform the MOH, USAID and other donors in the acceleration of neonatal tetanus control activities through immunization. Having identified cultural obstacles to tetanus toxoid immunization acceptability, the findings will be used to develop social communication strategies, design appropriate health messages, and refine delivery approaches.

In August 1988, REACH Senior Technical Officer Robert Steinglass continued his involvement with PVOs by conducting a joint EPI/ARI Workshop for a group of PVO and MOH staff members. The workshop objectives for EPI were to develop a consensus about the indicators to be included in the basic health information system, define basic health messages, oversee the early development of standard educational materials, and foster sharing of plans, policies and strategies.

ANNEX II

Places Visited

La Paz

MPSSP (Epidemiology Division)
USAID
PAHO
CARE
CARITAS
Catholic Relief Services
Coordination Program in Child Survival, Executive Secretariat
Food for the Hungry
Meals for Millions (Freedom from Hunger)
Save the Children (USA)

Outside La Paz

Belen health post
Chua Cocani Mothers' Center
Copacabana Hospital
San Pablo Medical Post
Siripaca health post

ANNEX III

Persons Visited

<u>NAME</u>	<u>TITLE</u>	<u>AFFILIATION/DUTY STATION</u>
Dr. Andres Bertos	Chief, MCH	MPSSP/La Paz
Dr. Joseph Bastien	Consultant	REACH
Eng. Maria del Carmen Camacho	Health Officer	CRS/La Paz
Dr. Rosa Cardoso	Epidemiologist	PAHO/La Paz
Dr. Oscar Castillo	Health Officer	UNICEF/La Paz
Dr. Marcelo Castrillo	National Medical Director	SCF (USA)/La Paz
Dr. Pedro Cazuriaga	Hospital Director	MPSSP/Copacabana
Lic. Martha Clavijo	Technical Director	Freedom From Hunger/La Paz
Dr. Javier Espindola	National MCH Director	CARITAS/La Paz
Lic. Diane Everaert	Technical Assistance Coordinator	Foster Parents Plan/La Paz
Dr. Airton Fishmann	Consultant Epidemiologist	PAHO/La Paz
Dr. Stella Goings	Child Survival Fellow Program Manager	Johns Hopkins/Baltimore
Dr. Percy Halkyer	National Advisor, EPI Polio	PAHO/La Paz
Mr. Paul Hartenberger	Chief, Health & Human Resources	USAID/La Paz
Lic. Enrique Lavadenz Leon	Chief, EPI	MPSSP/La Paz
Lic. Olga de la Olivia	National Director Health & Nutrition	Food for the Hungry/La Paz
Dr. Jorge Mariscal Padilla	National Director of Epidemiology	MPSSP/La Paz
Mr. Javier Palazuelos	Consultant	REACH

Lic. Nieves Quino	Responsible Regional Officer	Freedom From Hunger/ Cobacabana
Dr. Jorge Flores Ramirez	Chief, Department of Prevention & Control of Communicable Diseases	MPSSP/La Paz
Mr. Mario Telleria Rios	Executive Secretary	Coordination Program in Child Survival/La Paz
Mr. Simon Saavedra	Health Technician	Andean Rural Health Care/Carabuco
Eng. Corrine Seltz	Sub. Director	CARE/La Paz
Eng. Cesar Sevilla Paz Soldan	Head, Multi- sectoral Projects	Coordination Program in Child Survival/La Paz
Ms. Beverly Tucker	Head, Health Unit Coordination Program in Child Survival	Johns Hopkins/La Paz
Dr. Oscar Velasco	Consultant	REACH

ANNEX IV

Results of EPI Questionnaire (8 respondents)

Name of PVO: SCF, CARE, CARITAS, Freedom from Hunger, Andean Rural Health Care, Food for the Hungry, Project Concern, and Foster Parents Plan.

Name of Respondent: _____

1. What is the total population covered by your PVO in Bolivia?

2. What is your PVO's current and proposed involvement in EPI?

	(Answer Yes* current involvement <u> </u>)	or	No) proposed future involvement <u> </u>)
*Note: If "Yes", please specify.			
a. provide routine or outreach vaccinations			
-to children	4		5
-to women	4		4
b. provide vaccination during campaigns			
-to children	5		5
-to women	5		5
c. store vaccines	5		6
d. monitor storage temperatures	5		6
e. provide EPI supplies	5		5
f. transport staff/supplies for EPI	7		7
g. provide EPI training	7		7
h. supervise routine EPI activities	6		6
i. develop EPI health education materials	4		5
j. lead community discussions on EPI	8		8
k. pre-register eligibles for vaccination before campaign	4		5
l. screen and register eligibles during campaign	6		6
m. follow-up defaulters for vaccination	6		7
n. collect routine vaccination statistics	5		6
o. conduct KAP surveys	4		5
p. conduct EPI coverage surveys	3		5
q. estimate EPI coverage levels	7		8

r. develop EPI health information system	6		7
s. collect data on EPI target diseases	6		7
t. arrange community financing for EPI	0		1
u. provide financial support to MPSSP for EPI (gas, per diem, etc.)	3		3
v. Other (specify)			

3. In what ways do you feel your PVO can especially contribute to the MPSSP (and to other PVO's) in EPI campaigns or in strengthening routine EPI services?

a. training x 4

b. cold chain and logistics x 3

c. information campaign x 2

d. follow-up x 2

e. human resources x 2

f. studies, health information system, programming, screening/registration, supplies, per diem (one response each)

4. What does your PVO need to increase your contribution to EPI?

a. from MPSSP: -coordination & information exchange x 2
 -technical support x 2
 -funds, supplies, training, cold chain equipment and maintenance, BCG, collection and analysis of data (one response each)

b. from other PVO's: -exchange of experience x 2
 -coordination x 2
 -training x 2
 -educational materials x 1

c. from USAID: -funds x 4
 -cold chain training x 2
 -technical support x 2
 -social communication x 1
 -equipment x 1

5. List your organization's limitations in establishing EPI in the short term.

-funds x 2
 -human resources x 2
 -MPSSP policies, coordination with MPSSP, community mobilization, distances, transport, cold chain equipment and cold chain logistics (one response each)

ANNEX V

Objectives of Field Visit (EPI)

In selected health institutions:

- to identify EPI and ARI achievements and areas requiring improvement by means of observations, personal interviews, and review of records
- to gain experience in systematic field supervision using a sample supervisory checklist
- to stimulate practical discussions in plenary sessions
- to gain insights to improve the participants' EPI and ARI activities

Output of the Field Visit

- to complete the supervisory checklist
- to prepare a presentation of the results in plenary session

ANNEX VI

SAMPLE EPI SUPERVISORY CHECKLIST

Health Facility: location _____
type _____

A. Interviews (Circle "Yes" or "No" where applicable.)

1. Name and Title of person(s) interviewed.

2. Knows total population in service area? Yes No

3. What is your annual target number of infants for vaccination? _____

4. How do you plan to increase vaccination coverage in the future?

- a. _____
- b. _____
- c. _____

5. What resources do you need to increase coverage?

- a. _____
- b. _____
- c. _____

6. Can you administer vaccinations more frequently than now? Yes No

7. Do you use RPS's or Promoters for:

- a. planning with community dates/times of vaccination sessions? Yes No
- b. informing community about dates/times? Yes No
- c. pre-registering eligibles for vaccination? Yes No
- d. screening and registering eligibles at vaccination site? Yes No
- e. vaccination? Yes No
- f. follow-up of defaulters for vaccination? Yes No
- g. discussing EPI with the community? Yes No
- h. feedback of vaccination results to community? Yes No

8. What are the problems in organizing RPS's and Promoters?

- | | | |
|--|-----|----|
| 3. Are vaccination education materials on walls? | Yes | No |
| 4. Is vaccination being done on date of field visit? | Yes | No |
| If "Yes": | | |
| a. correct vaccine preparation and dose? | Yes | No |
| b. correct injection technique? | Yes | No |
| c. one sterile needle and one sterile syringe used for each injection? | Yes | No |
| d. only unexpired cold vaccine in use? | Yes | No |

D. Observations, Interviews, Records

- | | | |
|--|-----|----|
| 1. Is vaccine now in the refrigerator? | Yes | No |
| If "Yes": | | |
| a. is a single person responsible for the cold chain? | Yes | No |
| b. working thermometer present? | Yes | No |
| c. temperature recorded on each of last 30 days? | Yes | No |
| d. number of last 30 days temperature in correct range (2 to 8 degrees Celsius) | | |
| e. knowledge of correct storage temperature? | Yes | No |
| f. correct placement of vaccine in refrigerator and neatly organized by vaccine and expiration date? | Yes | No |
| g. only unexpired vaccines are in the refrigerator? | Yes | No |
| h. sufficient number of full icepacks frozen? | Yes | No |
| i. sealed bottles of water in refrigerator? | Yes | No |
| j. quantity of vaccine adequate (not too little or too much)? | Yes | No |
| k. any cold chain equipment needed? | Yes | No |
| If "Yes" specify. | | |

E. Exit Interviews

Privately asked 10 women one by one as they leave the facility.

	Woman answers:	
	<u>Correctly</u>	<u>Incorrectly</u>
1. Can you tell me why we give vaccinations?	_____ ()	_____ ()
2. Can you name 3 diseases that can be prevented by vaccination?	_____ ()	_____ ()
3. Do you know all the diseases against which your child has been vaccinated?	_____ ()	_____ ()
4. Does your child need any vaccinations?	_____ ()	_____ ()
5. Where and when can your child receive his next vaccinations?	_____ ()	_____ ()

F. Record any comments here:

G. Review results of this field visit with staff in charge.

1. What are strengths in their EPI?

2. What areas in their EPI need improvement?

Supervisor's Name/Title: _____

Signature: _____

Date of Visit: _____

ANNEX VII

Cold Chain Findings of Field Visits

<u>Team</u>	<u>Location</u>	<u>Vaccine Storage *</u>
1	San Pablo	D
1	Janko Amaya	F
2	Achacachi	A
3	Huatajata	C
3,4	Huarina	B,C
1,3	Chua Cocani	E,E
2,3	Moco Moco	E,E
4	Laja	D
5	Carabuco	A

* key:

- A (9-10 "yes" out of 10) - Vaccine storage very good
- B (6-8 "yes") - Vaccine storage good, needs slight improvement
- C (4-5 "yes") - Vaccine storage fair, needs much improvement
- D (1-3 "yes") - Vaccine storage very poor, needs major attention
- E - No vaccine storage
- F - Vaccine in storage, but not checked

ANNEX VIII

Reference Materials

A. Handed-out to each participant

Inmunizacion, producido por Dialogo sobre la Diarrea. AHRTAG, London. No. 30. April, 1988. *

Alerta en materia de esterilizacion. Boletin Informativo PAI. OPS/Washington. Agosto 1987. *

Serie Tecnica del PAI: Seleccion de Material de Inyeccion. PAI/OMS, Ginebra. No. 2, 1986. *

Las Vacunas del PAI: Indicaciones y Contraindicaciones. Boletin Informativo PAI. OPS/Washington. Diciembre 1983 y Febrero 1984. *

Vacunemos: Manual del Responsable Popular de Salud. MPSSP. La Paz.

Set of PAI/MPSSP forms. MPSSP, La Paz.

B. Handed-out to each PVO and to the MPSSP

Modulos de Ensenanza y del Material Didactico del Programa Para Que Vivan Los Ninos, La Liga De Sociedades De Cruz Roja, Ginebra. *

Evaluacion de la Cobertura Vacunal. MPSSP, La Paz 1987.

Prologo. (basado en Immunization Policy, WHO/EPI/GEN/86/7 Rev 1). OPS/Washington. 1987 (doc. 4141K).

C. Provided to reference library

La Cadena de Frio. Hojas de informacion sobre productos. OMS/UNICEF. Ginebra. 1987. *

El Programa Ampliado de Inmunizacion. F. Marc La Force, Ralph H. Henderson, y J. Keja, Foro Mundial de la Salud. Vol. 8, 1987. *

Inmunizacion para Todos los Ninos del Mundo. Population Reports. Serie L, No. 5, Mayo 1987. Johns Hopkins University, Baltimore. *

Avances Recientes en Inmunizacion. Una revision bibliografica. Publicacion Cientifa No. 451, 1983. *

Programa Ampliado de Inmunizacion (PAI) Taller sobre Planificacion, Administracion y Evaluacion. (5 modulos) OPS/Washington.

* available in English and Spanish

Operacion y Mantenimiento de la Cadena de Frio. (Un curso incluyendo modulos y rotafolios.) OPS/Washington.

Immunization in Practice: A Guide for Health Workers Who Give Vaccines. (course consisting of 8 modules and Trainer's Guide). WHO/Geneva.

D. Additional Useful Reference Materials

El Desafio; Una Guia de Accion para Proyectos POLIOPLUS, Rotary International, Evanston, 1987. *

Principios de planificacion para las actividades de inmunizacion aceleradas. OMS/UNICEF. Ginebra, 1985. (PAI/86/003) *

Esterilizacion a vapor a lugares altos. Boletin Informativo PAI. OPS/Washington. June 1987. *

La Politica y los Enfoques Estrategicos del PAI en las Americas; Declaracion Conjunta de los Organismos Miembros del CCI. PAI. *

Textbook for Slideset "Sterilization and Sterile Procedures." WHO, Geneva.

The Cold Chain. (48 slides and manual). Teaching Aids at Low Cost. England.

POLIOPLUS - Un programa de Rotary International para inmunizar los ninos del mundo. Rotary International. Evanston. *

Universal Childhood Immunization 1990: How to Accelerate EPI. Training Package Developed by UNICEF and WHO. 1987.

EPI Update: Monitor the Cold Chain - the Lifeline of the EPI. WHO, Geneva, May 1988.

Evaluate Vaccination Coverage (Module from EPI Mid-Level Managers Course). WHO, Geneva. 1988.

Reconozca la Enfermedad - Una guía para el diagnóstico de seis enfermedades objeto del PAI (juego de diapositivas). OPS/Washington. 1988. *

* available in English and Spanish

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ANNEX IX

TT Immunization Schedule for Women 15-44 years old

<u>Dose</u>	<u>When to administer</u>	<u>Duration of Immunity</u>
TT1	At 1st contact or as early as possible during pregnancy	None
TT2	At least 4 weeks after TT1	3 years
TT3	At least 6 months after TT2 or during subsequent pregnancy	5 years
TT4	At least one year after TT3 or during subsequent pregnancy	10 years
TT5	At least one year after TT4 or during subsequent pregnancy	Life-long

Check a woman's tetanus toxoid immunization status EVERY TIME she visits a health facility.

based on
EPI
WHO/GENEVA
1988

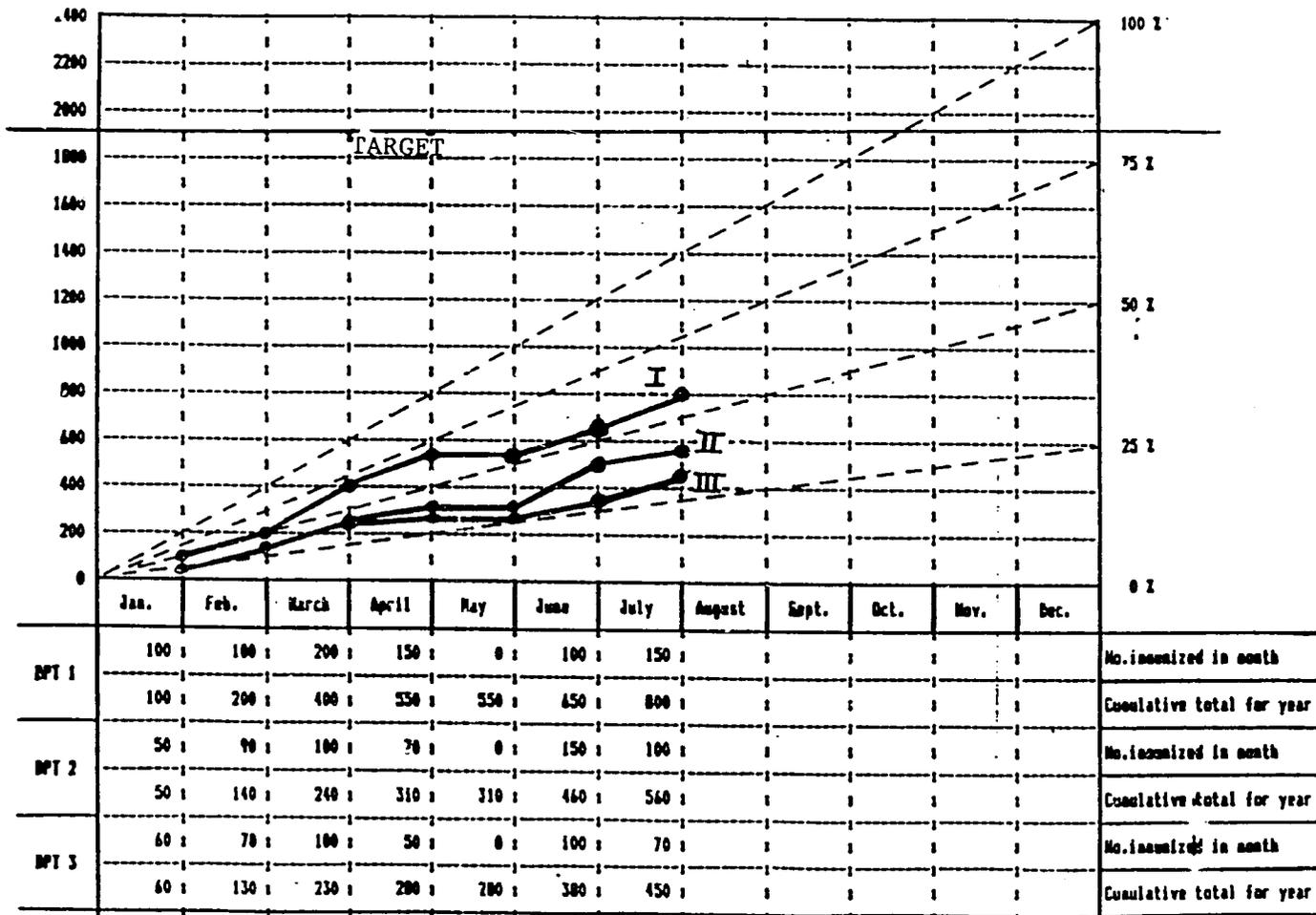
ANNEX X

Current and Proposed EPI Indicators Stated by the Participants

<u>Indicator</u>	<u>Source of Data</u>
1. Proportion of infants by age immunized with BCG, DPT 3, Polio3 and Measles	- EPI form 8A - survey
2. EPI-target morbidity & mortality (cases & rates)	- routine surveillance system - sentinel surveillance system
3. Polio lameness	- survey - nationwide active case detection - sentinel surveillance for epidemiological characteristics
4. Cold chain inventory	- recently completed - periodic updating
5. Cold chain management	- supervisory checklist
6. Drop-out rate	- EPI form 8A
7. Health services administering vaccines>	
8. Number of RPS's >	- routine records need to include this - routine records need to include new and cumulative staff - periodic inventory
9. Utilization & availability of human resources >	
10. Population 0-11, 12-23, 24+ months	- projection from 1976 national census using 2.81% natural growth rate which disregards local variation in growth rate and migration - local census
11. Proportion of targets achieved	- needs target first (versus eligibles)

- 12. Knowledge of EPI at all levels
 - supervisory checklist
 - KAP studies
- 13. Vaccine utilization & wastage
 - analyze at higher levels from routine reports, but do not frighten lower levels from opening vial even for one child
- 14. Supervisory visits
 - advance versus completed supervisory programs and findings
 - visitor's book to record findings

Health Centres Valla Years 1984
 Eligible populations 2400 Vaccines DPT 1,2,3



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ANNEX XII

A. USAID Indicators for FY 1988

Tier 1: (obligatory)

1) No. of infants (less than 12 months of age) vaccinated with:

	<u>Source</u>
- Measles	EPI 8A, p.1
- Polio 1	EPI 8A, p.1
- Polio 3	EPI 8A, p.1
- DPT 1	EPI 8A, p.1
- DPT 3	EPI 8A, p.1
- BCG	EPI 8A, p.1

2) No. of fertile-aged women (15-49) and/or no. of pregnant women vaccinated with TT2 (Source: EPI 8A, p.2)

Tier 2: (optional and recommended)

1) Percent of children (12-23 months) that have been vaccinated before 12 months with:

- BCG
- DPT 3 (Source: 30-cluster survey)
- Polio 3
- Measles

2) Percent of fertile-aged women (15-49 years) delivered in the last 12 months who have received two doses of tetanus toxoid. (Source: 30-cluster survey)

B. Final Project Evaluation Indicators: USAID

These indicators are also essential for annual management of the project. The numbers in parentheses refer to the schedule and question number in the USAID Health and CS Project Questionnaire.

The source of all the data is EPI Form 8A, pages 1-2.

1) % SERIES COMPLETION BY ANTIGEN FOR PRIORITY EPI GROUPS, DURING THE PAST 12 MONTHS

% BCG Coverage of Infants

$$\frac{\text{\# of infants 0-11 months immunized for BCG (3-1.3)}}{\text{\# of live births (1-5.1)}} \times 100$$

% DPT 3 Coverage of Infants

$$\frac{\text{\# of infants 0-11 months immunized for DPT3 (3-1.3)}}{\text{\# of live births (1-5.1)}} \times 100$$

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% Polio3 Coverage of Infants

$$\frac{\# \text{ of infants 0-11 months immunized for Polio3 (3-1.3)}}{\# \text{ of live births (1-5.1)}} \times 100$$

% Measles Coverage of Infants

$$\frac{\# \text{ of infants 0-11 months immunized for Measles (3-1.3)}}{\# \text{ of live births (1-5.1)}} \times 100$$

% TT2 Coverage

$$\frac{\# \text{ of women age 15-49 immunized for TT2 (3-1.3)}}{\# \text{ of women age 15-49 (1-4.1)}} \times 100$$

2) PROJECT'S ABILITY TO TARGET/FOCUS ON INFANTS UNDER ONE YEAR OF AGE, DURING THE PAST 12 MONTHS

$$\frac{\# \text{ of infants 0-11 months who received DPT1 (3-1.3)}}{\# \text{ of live births (1-5.1)}} \times 100$$

compared to

$$\frac{\# \text{ of children 0-59 months who received DPT1 (3-1.3)}}{\# \text{ of children 0-59 months (1-3.1 + 1-3.2)}} \times 100$$

3) DROP OUT BETWEEN INITIAL AND FINAL IMMUNIZATION FOR SELECTED ANTIGENS IN THE PAST 12 MONTHS

DPT Drop out Rate
(for immunizations given to infants 0-11 months)

$$\frac{\text{DPT1 (3-1.3)} - \text{DPT3 (3-1.3)}}{\text{DPT1 (3-1.3)}} \times 100$$

Polio Drop Out Rate
(for immunizations given to infants 0-11 months)

$$\frac{\text{Polio1 (3-1.3)} - \text{Polio3 (3-1.3)}}{\text{Polio1 (3-1.3)}} \times 100$$

TT Drop Out Rate
(for immunizations given to women age 15-49)

$$\frac{\text{TT1 (3-1.3)} - \text{TT2 (3-1.3)}}{\text{TT1 (3-1.3)}} \times 100$$

NOTE: If the project has recent survey data, this information may be used.
Also, please cite source of data for the evaluation team calculations.

C. Additional MPSSP Indicators

All the previous indicators are also recommended by the MPSSP. Additionally, the following indicator is also useful:

$$\frac{\text{\# of pregnant women vaccinated with TT2}}{\text{\# of live births}} \times 100$$

(Source: EPI 8A, p. 2)

D. Other Important Indicators

- Missed Immunization Opportunities:

$$\frac{\text{No. of Children 12-35 months old vaccinated for measles}}{\text{No. of children 12-35 months old vaccinated with DPT1}} \times 100$$

(Source: EPI 8A, p.1)

- Early Starters:

$$\frac{\text{No. of children less than 12 months vaccinated with DPT1}}{\text{No. of children of all ages vaccinated with DPT1}} \times 100$$

(Source: EPI 8A, p.1)

- Access:

$$\frac{\text{No. of children less than 12 months vaccinated with Polio1}}{\text{No. of live births}} \times 100$$

(Source: EPI 8A, p.1)

CONSOLIDADO MENSUAL DE VACUNACIONES - NIVEL REGIONAL

FORMULARIO PAI - 8 A
 HOJA No. 1

UNIDAD SANITARIA MES AÑO

ORIGINAL: NIVEL CENTR
 COPIAS: NIVEL REGIONAL

NOMBRE DEL RESPONSABLE FIRMA FECHA DEL INFORME

DISTRITOS	CODIGO	No. PUESTOS VACUNAC	P O L I O									D. P. T.			SARAMPION		B.C.G.		DESPARASITADOS 2 A 9 AÑOS
			MENORES DE 1 AÑO			1 Y 2 AÑOS			MENORES DE 1 AÑO			1 Y 2 AÑOS			-1 AÑO	1 y 2 A.	-1 A	1 y 2 A	
			1ra.	2da.	3ra.	1ra.	2da.	3ra.	1ra.	2da.	3ra.	1ra.	2da.	3ra.	UNICA	UNICA	UNICA	UNICA	
	PAI REG.																		
	BRIG.																		
	MOVILIZ.																		
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CONSOLIDADO MENSUAL DE VACUNACIONES – NIVEL REGIONAL

UNIDAD SANITARIA

MES AÑO

NOMBRE DEL RESPONSABLE

FIRMA

FECHA DEL INFORME

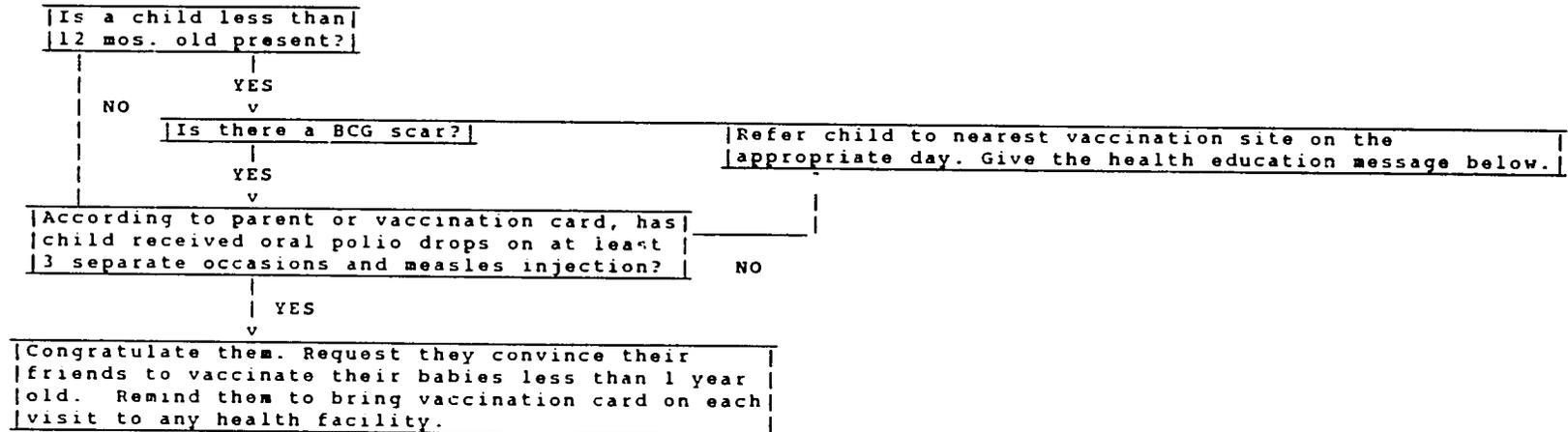
D I S T R I T O S	CODIGO	Nº PUESTOS VACUNAC	POBLACION DE 3 AÑOS Y MAS											FIJER AMARILLA	
			P O L I O			D. P. T.			SARAMPION	B.C.G.	D. T.		T.T. EMBARAZADAS		
			1ra	2da.	3ra	1ra	2da.	3ra.	UNICA	UNICA	1ra.	2da.	1ra.		2da.
	PAI. REG.														
	BRIGAD														
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	MOVILIZ.														

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ANNEX XIV

ROLE OF HEALTH FACILITIES IN HEALTH EDUCATION AND IMMUNIZATION OF CHILDREN

All health facilities should offer immunization to children and to women aged 15-44 years old on a regular basis (daily, weekly, monthly). During registration, staff should screen each patient and refer eligible ones for vaccination. Staff must learn the immunization schedule and the days immunization is offered in their own health facilities and in health facilities nearby. Regardless of whether or not the health facility is vaccinating, staff can use the following flow chart to give health education to each adult.



Health education message to be told to each adult:

1. Immunization can save children's lives.
2. Vaccinations protect against measles, polio, whooping cough, TB, tetanus, and diphtheria. (Use local names for these diseases. Without these vaccinations, your children will likely suffer and could die from some of these diseases. Women aged 15-44 years old need injections to protect their future babies against neonatal tetanus.
3. Three or four visits are needed to complete all the childhood vaccinations, with intervals between visits of 4 weeks.
4. Babies need vaccinations starting at birth, so that they can be protected before the diseases strike.
5. Mild fever and soreness lasting a day is common and normal following vaccinations. Do not worry.
6. Keep vaccination card(s) safely and bring them on each visit to any health facility even if you are not also bringing the children. This way I will be able to tell you whether additional vaccinations are needed.
7. You can get yourself and your children vaccinated every ___ at ___. Vaccinations are free of charge.
8. You can help fight these diseases: Tell you neighbors: Immunization can save children's lives.

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ANNEX XV

EPI Quiz and Results

1.	What is the correct storage temperature at peripheral levels of the cold chain.?	correct	22
		incorrect	1
2.	Which is better?	correct	16
	A) to supply lower levels of the cold chain with small amounts of vaccine frequently, or	incorrect	7
	B) large amounts of vaccine less frequently?		
	Why?		
3.	Give 3 possible causes which you would investigate if many children who had been vaccinated against measles later contracted the disease.	3 correct answers	12
		2 correct answers	9
		1 correct answer	2
4.	Give 1 important reason why vaccination of babies in the thigh is considered in many countries better than vaccination in the buttocks.	correct	21
		incorrect	2
5.	What is the most important thing to ensure if you decide to use disposable syringes and needles?*	correct	9
		incorrect	14
6.	Name one advantage and one disadvantage of using disposable needles and syringes.	1 advantage, 1 disadvantage	17
		1 advantage, 0 disadvantage	4
		0 advantage, 0 disadvantage	2
7.	Name one advantage and one disadvantage of using reusable needles and syringes.	1 advantage, 1 disadvantage	10
		1 advantage, 0 disadvantage	8
		0 advantage, 0 disadvantage	5
8.	Which EPI vaccine is most easily damaged by heat?	Polio (correct)	21
		Polio & Measles	1
		BCG	1
9.	Name 2 reasons why it is useful to conduct a community 30- cluster coverage evaluation survey for EPI?*	2 correct reasons	3
		1 correct reason	2
		cannot name a reason	18
10.	What is the best age range of children to include in a community coverage evaluation survey?	correct	13
		incorrect	10

11. TRUE or FALSE: It is safe and effective to vaccinate women with T.T. during the first trimester of pregnancy	TRUE (correct)	16
	FALSE(incorrect)	7
12. Have you learned things about EPI that will be useful in your programs?		
1. learned much, very useful		5
2.		8
3.		7
4.		2
5. learned very little, not useful		1
	average	4

* Questions #5 and #9 were not understood by the participants.

ANNEX XVI

RESUMEN DE NECESIDADES DE LA CADENA DE FRIO

ELEMENTO	MARCA	MODELO	CANTIDAD	PRECIO UNITARIO	PRECIO TOTAL
REFRIGERADORES	SIBIR DE LUXE	S2323	108	746.13	80.582.04
REFRIGERADORES	ELECTROLUX	RCW42EG (P)	10	932.33	9.323.30
REFRIGERADORES	CONSUL	1300	9	420.00	3.780.00
REFRIGERADORES	CONSUL	280	12	460.00	5.520.00
REFRIGERADORES	ENGEL	MRF 530A4	10	210.14	2.101.40
CONGELADOR	VESTFROST	SB 300	18	317.87	18.436.46
CONGELADOR PAQ	IBERNA	V 824	7	425.60	2.979.20
CONGELADOR PAQ	IBERNA	V 836	5	512.03	2.560.25
ICE LINING	VESTFROST	M: 140	5	492.00	2.460.00
CONGELADOR-REF	ELECTROLUX	RCW 65 (gas)	29	2.198.46	63.765.21
CONGELADOR	PHILIPS	AFB 075/T			
REFRIGERADOR	SINFROST	RFV-4	2	1.400.00	2.800.00
PANELES SOLARES	ARCOSOLAR	M-75	8	505.40	4.043.20
BATERIAS		180 AMP	6	332.50	1.995.00
REGULADORES			2	397.00	794.00
ACCESORIOS			2 J	266.00	532.00
INSTALACION			2	1.995.00	3.990.00
IMPREVISTOS PARA COMPRA REFRIGERADORES					20.555.00
CARGADOR VACUNA	KING SEELEY	3504/38	543	28.90	10.583.00
CARGADOR VACUNA	PAKISTAN				
	DESING	PDI SOFT BOX	28	117.64	3.294.00
CAJA TERMICA	SILFE SPA	24LT TP 15 200	28	296.16	8.292.60
PAQUETES FRIOS	THERMOS	ICEPACK 3500/PUN	7.392	1.10	8.131.00
PAQUETES FRIOS	POLYFOAM	ICEPACK 0.4L	9.300	0.51	4.743.00
GARRONES GAS			499	18.50	9.231.50
TERMOMETROS	BRANNAN	22/994 1/2			
TERMOMETRO ELEC	DIBITRON	1204	12	167.00	2.004.00
KIT DE ADAPTACION A GAS			40	25.00	1.000.00
KIT DE ADAPTACION ELECTRICO	ELECTROLUX	RAK 360/220V	20	40.97	819.53
KIT DE ADAPTACION ELECTRICO	ELECTROLUX	RAK 100/220V	5	40.97	204.85
KIT DE ADAPTACION ELECTRICO	ELECTROLUX	RAK 36	20	41.95	839.09
QUEMADOR KOSMOS 8"			25	12.00	300.00
QUEMADOR ALADIN 23"			20	13.00	260.00
TUBO DE VIDRIO 8"			125	1.00	125.00
TUBO DE VIDRIO 23"			20	1.50	30.00
INSOLOMETROS	HAENY		10	290.00	2.900.00

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MECHA KOSMOS 8 SILVER	BMM-0011F	100	0.70	70.00
MECHA ALADIN 23"	F4T-2310F	50	1.60	80.00
PLANTA ELEC	LISTER	5	18.400.00	92.000.00
PLANTAS ELEC	LISTER	7	14.200.00	99.400.00
LANCHAS	FIBRA DE VIDRIO 22 P.	10	9.000.00	90.000.00
MOTORES FUERA BORDA 40 HP	YAMAHA	10	3.440.00	34.400.00
TRANSMISORES ONDA CORTA	YAESU	11		
CAMION 6 TONS CON WINCHE	TOYOTA	1	22.000.00	22.000.00
CAMION REFRI	HANCO			
	CONTAINER SERIES III	1	23.833.00	23.833.00
VAGONETA	TOYOTA	1	18.000.00	18.000.00
ALARMA C FRIO	AIRFLOW	3	179.55	538.65
REPUESTOS	VER ANEXO IX			9.402.00
REPARACION CASCO BARCO HOSPITAL		1	6.000.00	6.000.00
CURSOS DE SUPERVISION CADENA DE FRIO		2	6.000.00	12.000.00
CURSOS DE OPERACION Y MANTENIMIENTO CADENA DE FRIO		4	5.000.00	20.000.00
CURSOS DE CADENA DE FRIO 1 DIA 11 PARTICIPANTES		100	217.00	21.700.00
EQUIPO DE SOLDADURA OXIACETILENO		11	290.00	3.190.00
BOMBAS DE VACIO		11	260.00	2.860.00
GRAN TOTAL EQUIPOS.....			U.S	751.727.75

ANNEX XVII

Buyer's Guide to Selecting Refrigerators

For areas with:

<u>Strategy</u>	<u>Continuous 24-hour electricity available</u>	<u>at least 12 hours electricity available daily</u>	<u>at least 8 hours electricity available daily</u>	<u>electricity unreliable but gas available</u>
Static	Vestfrost MK 140 (E3/57)*	Vestfrost MK 140 (E3/57)	Vestfrost MK 140 (E3/57)	Electrolux RCW42EG(p) (E3/21)
Little outreach	Electrolux RCW 42AC (E 3/30) (1-2 teams operate daily)	Electrolux TCW 1990 (E3/62) (5-10 teams operate daily)	Electrolux RCW 42EG(p) (E3/21) (on gas) (1 team operating less than three times per week)	Electrolux RCW42EG(p) (E 3/21) (1 team operating less than 3 times per week)
Busy outreach	Electrolux TCW 1990 (E 3/62) (5-10 teams operate daily)	Electrolux TCW 1990 (E3/62) (5-10 teams operate daily)	Sibir V240 GE (E3/29) (on gas) (2-3 teams operate daily)	Sibir V240GE (E3/29) (2-3 teams operate daily)

* codes refer to listings in WHO/UNICEF Cold Chain Product Information Sheets, 1988/89.