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1. Project/Subproject Number: 9365927

2. Contract/Grant Number:

3. Publication Date:

4. Document Title/Translated Title:

5. Author(s)
1.
2.
3.

6. Contributing Organization(s):

7. Pagination:

8. Report Number:

9. Sponsoring A.I.D. Office: S&T/Health

10. Abstract (optional - 250 word limit)

11. Subject Keywords (optional)
1.
2.
3.
4.
5.
6.

12. Supplementary Notes

13. Submitting Official: Nancy Cylke / JSI

14. Telephone Number: 703 ~~582~~ 528-8211

15. Today's Date: 7 August 1989

DO NOT write below this line

16. DOCID:

17. Document Disposition: DOCRD [ ] INV [ ] DUPLICATE [ ]

AID 590-7 (10/88)

PN-AAT-09

TECHNICAL SUPPORT TO THE EXPANDED PROGRAM ON IMMUNIZATION, ECUADOR

USAID/QUITO

JANUARY 1989

Resources for Child Health Project

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PA-ABL-090

KA 69-19

Technical Support to the Expanded Program on Immunization, Ecuador

USAID/Quito

11-22 January 1989

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AID Contract No.: DPE-5927-C-00-5068-00

Table of Contents

	page number
I. Executive Summary	1
II. Acknowledgements	5
III. Purpose of Visit	5
IV. Background	5
V. Trip Activities	6
VI. Results and Conclusions	7
VII. Recommendations	16
VIII. Follow-up	16

Annexes

Annex 1: Persons Visited
Annex 2: Role of Health Facilities in Health Education and Immunization of Children
Annex 3: TT Immunization Schedule for Women
Annex 4: Tetanus Protection Card
Annex 5: EPI Norms Issued by MSP
Annex 6: Reference Materials
Annex 7: Graph to Monitor Vaccination Coverage in Infants
Annex 8: Hypothetical Coverage by Cantons Within a Province
Annex 9: EPI Coverage Indicators
Annex 10: Sample EPI Supervisory Checklist for Operational Levels
Annex 11: Sample List of Items to Carry on Supervisory Trips
Annex 12: Job Description of REACH EPI Field Coordinator
Annex 13: Memory Aide: Cold Chain Problems and Solutions
Annex 14: Buyer's Guide to Selecting Refrigerators
Annex 15: Steam Sterilizers and Reusable Syringes/Needles
Annex 16: Excerpts from "Cultural Perceptions of Neonatal Tetanus and Programming Implications, Bolivia"

Glossary

EPI	Expanded Program on Immunization
GOE	Government of Ecuador
MSF	Ministry of Public Health
PAHO	Pan American Health Organization
PIS	Product Information Sheets
PREMI	Plan for Reduction of Infant Morbidity and Mortality
PSC	Personal Services Contract
REACH	Resources for Child Health Project
TBA	Traditional Birth Attendant
TDY	Tour of Duty
USAID	United States Agency for International Development
WHO	World Health Organization

I. Executive Summary

The Ministry of Public Health (MSP) and external agencies participating in Ecuador's Expanded Program on Immunization determined in 1987 that a field-oriented supervisor was required to focus on improved implementation of immunization service delivery at operational levels. The Ministry and USAID/Quito requested REACH to hire Dr. Jose Litardo as the EPI Field Coordinator and to provide him with the required technical support, including two short-term visits per year from REACH headquarters. This first visit, undertaken between 11-22 January 1989, included detailed discussions with USAID, MSP, PAHO, and UNICEF staff and a 3 day field trip within Cotopaxi Province. The purpose of the field visit was to work alongside the Field Coordinator to demonstrate EPI supervisory techniques, identify strengths and weaknesses in the EPI, and formulate recommendations.

Key Findings

Centralized planning cannot cope with all the minute details (manpower availability and distribution, cold chain equipment and management, topographic and climatic factors, population distribution and settlement patterns, etc.) which must be factored into effective immunization service delivery. As part of its broader regionalization of health services, the MSP will require technical, managerial, administrative and logistic support for its EPI at provincial and canton "health area" levels. The need for persons who can provide this support, like the REACH EPI Field Coordinator, is absolutely essential to make regionalization work.

The EPI will rely on complementary strategies to deliver services, including province-wide immunization campaigns, outreach from health facilities to areas of concentrated population, house to house vaccination, and routine vaccination in response to "spontaneous demand" in health facilities. Overly passive and inefficient response in health units to current routine demand has limited the effectiveness of the latter strategy.

Studies have found that 5% of all deaths nationally in children born during the past five years are due to neonatal tetanus, which remains in many areas possibly the most significant cause of easily preventable neonatal mortality. However, prevention of neonatal tetanus has been neglected relative to other EPI target diseases.

Many of the norms in use in Ecuador do not reflect internationally accepted WHO EPI policies and are explained further in the recommendations section.

A very useful graph for the monthly monitoring of immunization coverage is being introduced at provincial and canton levels. In many areas, a major problem for EPI is that third doses are not completed before 12 months of age.

Supervision, which has consistently been identified in program evaluations as the weak link in the EPI in Ecuador, has become essential in the current regional attempt to program routine services at local levels.

An EPI Supervisory Checklist, designed by the writer for operational levels in Bolivia, worked well on the field trip to focus on key information and raise important topics for on-the-spot training.

The cold chain is well-organized, although training in its management and supervision are needed. The cold chain will become relatively more difficult to manage once EPI shifts from campaigns to routine services, and local health facilities have a continuous stock of vaccine to store, rotate and use over time.

As vaccination coverage is lowest in Esmeraldas (DPT3 = 31%) and neonatal mortality rates are highest in rural coastal areas, REACH supports the MSP's decision to assign Dr. Litardo to Esmeraldas in 1989. Given the large unvaccinated population in nearby coastal provinces, REACH expects that Dr. Litardo can also assist there.

Key Recommendations

Regionalization

1. As part of the planned regional restructuring of health services, the MSP needs to clearly define the roles and responsibilities for EPI of provincial and canton staff to ensure that "health areas" are completely managed and supported. The canton hospital director could be made responsible for EPI within the health area.

2. The Inter-Agency Coordination Committee should meet as soon as possible and commit funds in support of activities planned for 1989, paying particular attention to the current shortage of vaccines in Ecuador.

Delivery strategies

1. Place more emphasis on routine outreach strategies from fixed posts, including schools and churches, in nearby populated areas so that periodic province-wide campaigns can concentrate on the more distant populations lacking access. This can be combined with house to house "channeling" of eligible children and women to the outreach post.

2. Design simple lesson plans for systematic use in schools, suggesting specific community activities, to harness the energy (and natural competition) of school children in promoting vaccination coverage.

3. Systematically screen, refer and vaccinate children daily in fixed facilities without fear of vaccine wastage and without excessive invalid contraindications, so that no opportunities to vaccinate are missed.

4. Work through community leaders and promoters to stimulate demand rather than passively responding to "spontaneous demand."

5. Intensify neonatal tetanus control efforts in areas of known or suspected higher incidence. Expand eligibility to all women of childbearing age. Screen and vaccinate them, as well as pregnant women, at every contact. Implement the WHO-recommended 5 dose schedule and record TT 1, 2, 3, 4, and 5 on long-lasting Tetanus Protection Cards and on statistical sheets. Immunize female students annually in each of the early grades. Require proof of a recent dose of TT for issuance of a marriage certificate. Use TBA's to promote TT vaccination. Include TT during campaigns.

EPI Norms

1. Revise and widely circulate EPI norms with the following changes which are internationally accepted:

   - inter-dose interval with polio, DPT and TT primary series can be shortened to 4 weeks.
   - TT should be given at first contact in any month of pregnancy.
   - infants receive 0.05 ml of BCG, 0.1 ml if more than 12 months of age.
   - some polio products require 3 drops.
   - I.M. injections to young children should be given in the antero-lateral aspect of the thigh, never in the buttocks.
   - eliminate contraindications for BCG (<2500 grams), polio (vomiting and diarrhea) and TT (restricting TT to only 5th and 7th months of pregnancy).
   - include Polio Zero Dose at birth; polio administered to children with vomiting or diarrhea should not be counted as part of the series.

2. Any norms should include information on:

   - importance of starting and finishing the series early.
   - safety and efficacy of immunizing children with all vaccines on same day.
   - not restarting interrupted schedules.
   - opening a vial even for one child.
   - giving measles vaccination unless documented history of measles or dated measles vaccination exists.
   - MSP policy concerning reuse of opened vials.

Monitoring Immunization Coverage

1. Rapidly implement in each province and canton the present plan to use a graph to monitor monthly the vaccination coverage, using 100% of eligibles as the target.

2. Broaden the criteria for identification of "critical areas" from present system based solely on vaccination coverage of less than 50%. Consider also the total population and the numbers of unvaccinated per canton.

3. Request funds from appropriate sources to translate into Spanish the revised "Coverage Survey" module from the WHO EPI Mid-level Manager's Course.

Supervision

1. Determine who will be responsible for technical supervision at each level, and with what frequency supervisory visits will be made.

2. Finalize design of a EPI Supervisory Checklist using Annex 10 as a model, field test it, and train supervisors in its use.

3. Require advance preparation at each level of a program of field supervisory visits which should be filed at the next higher level. Completed checklists should be submitted to the higher level and comments fed back to lower levels. Record immediate actions to be taken in a unit-maintained supervisory log book.

4. Prepare a menu of discussion topics and suitable materials to be used for provincial in-service training, where feasible, during monthly visits by rural health staff to collect salary.

Cold Chain

1. Consult Annex 14 to select suitable refrigerators.

2. Establish a stock of essential refrigerator spare parts and a system of replenishment in each province.

3. Do not despatch unsolicited vaccines from one level to the next.

4. Order some steam sterilizers and reusable syringes/needles (Annex 15) for testing at provincial or canton hospitals which have a centralized injection room to help solve the problem of inappropriate reuse of disposable syringes.

5. Do not rely on locally produced liquid BCG vaccine when ordering and despatching vaccines, as it cannot reach peripheral levels of the cold chain within its 15 day usable life.

6. Require provincial cold chain staff to do an actual monthly inventory of vaccine stocks and to adjust "cardex" files accordingly.

Research

1. Analyze by geographic area and by age at death in days currently available neonatal mortality data sets, since excess deaths above the declining mortality curve between 4 and 14 days are likely attributable to tetanus.

2. Conduct studies to determine the extent of the problem of missed opportunities for immunization. Include the review of vaccination cards for missed opportunities as a routine part of field supervision.

II. Acknowledgements

The writer acknowledges with gratitude all those persons from the Government of Ecuador (GOE), USAID/Quito, PAHO and others who freely shared their ideas, experiences and resources. A special word of thanks goes to the REACH EPI Field Coordinator, Dr. José Vicente Litardo Barzola, and to MSP field staff for their friendly helpfulness.

III. Purpose of Visit

The writer was requested by USAID/Quito to perform the following scope of work:

1. Prepare a long-term strategy for involvement of the REACH EPI field Coordinator according to his job description.

2. Accompany the REACH EPI Field Coordinator on field visits to share supervisory skills and information, and to provide technical support to USAID and the MSP.

3. Discuss planned EPI activities with the MSP and members of the Inter-Agency Coordinating Committee.

4. Engage in other related duties as considered necessary by USAID/Quito.

IV. Background

For many years, the EPI in Ecuador has received technical support from USAID (through MSP/PREMI), PAHO, and UNICEF. The external agencies and GOE agreed in 1987 that a field-oriented supervisor was needed to focus on improving EPI service delivery at operational levels.

As the focus of the MSP began to change from a campaign approach towards long-term institutionalization of routine services, USAID/Quito requested REACH (Quito, 12968) to identify and hire an Ecuadorian citizen to fill a two-year TA post as EPI Field Coordinator. Two brief visits by this writer in September 1987 and September 1988 resulted in the hiring of Dr. José Vicente Litardo Barzola, who assumed his post in late September 1988.

The Mission further requested that REACH provide its EPI Field Coordinator with institutional back-up support. REACH has budgeted two short-term TA visits per year by REACH staff to provide Dr. Litardo with the required technical support. This was the first of these technical visits.

Prior to this TDY, the writer consulted several times with the sub-regional PAHO EPI Advisor (with whom he had collaborated on a previous visit) and with PAHO staff in Washington in an attempt to coordinate a joint REACH/PAHO field visit. Despite mutual interest, prior commitments regrettably did not permit participation by international PAHO staff at this time.

V. Trip Activities

The writer visited USAID/Quito (including PREMI), MSP and PAHO staff in Quito before departing with the REACH EPI Field Coordinator on a three-day field trip to Cotopaxi Province. Cotopaxi was selected due to its relative proximity, given the time available and given its inclusion as one of six provinces in an upcoming USAID Child Survival project. Its infant mortality rate of 86 per 1000 is the highest in Ecuador (with some rural areas having a rate of over 100 per 1000), while its EPI coverage levels (DPT3=41%) are lower than national averages (DPT3=51%).

The emphasis during the field trip was to observe the REACH EPI Field Coordinator, Dr. Litardo, in action, provide him with technical information, and demonstrate EPI supervisory skills. Although it was not the primary purpose, the field visit gave the writer an opportunity to understand better the EPI in Ecuador, to identify strengths and weaknesses and to formulate some recommendations.

Visits were made to the following places:

- Cotopaxi Province Health Directorate
- Salcedo Canton Hospital
- Antonio José Holguin Sub-Center
- Pujili Canton Hospital
- Victoria Sub-Center.

The writer also reviewed several recent USAID documents including:

- "Perinatal Mortality in Ecuador" by Rudolph H. Tangermann and Antonio Crespo, USAID, 1988.
- "Child Survival in Ecuador" by Shea Oscar Rutstein, Aurora V. Fermo, and Antonio Crespo, USAID, 1987.
- "Child Survival Project Identification Document", USAID, 1988.
- "Child Survival Strategy", USAID, 1988.

Upon returning to Quito, the writer debriefed staff from the above-mentioned agencies, as well as UNICEF, and left a draft executive summary of this TDY report in English with USAID/Quito and MSP staff.

The writer was shown an EPI supervisory checklist, which has never been put into use, by PAHO staff which he reviewed and returned with comments to PAHO. USAID/Quito staff also received the writer's comments on a list of supplies and equipment requested by the MSP.

Persons visited are listed in Annex 1.

VI. Results and Conclusions

A. Regionalization

Until recently, the EPI has mostly been a centrally planned program. The Plan of Health, 1988-1992 of the MSP emphasizes the need for regionalization of health services.

The general trend worldwide within EPI over the past several years has been to stress micro-level planning, since centralized planning cannot effectively cope with the minute details (manpower availability and distribution, cold chain equipment, topographic and climatic factors, population distribution and settlement patterns, etc.) which must be factored into immunization service delivery. However, to regionalize planning will require considerable technical, administrative, managerial and logistic support to the provinces, and beyond to the cantons.

The provinces await guidance from Quito. What will be the role of the EPI Provincial Chief under the new scheme? Generally, he is not now working full-time in EPI; usually he has either MCH or epidemiological responsibilities, as well.

Canton hospital staff have traditionally considered their EPI duties to be strictly within the hospital, as well as provision of vaccines to parishes. The regionalization scheme provides Quito with an opportunity to engage in a restructuring at canton level in order to clearly place responsibility for the entire canton or "health area" EPI on the director of the canton hospital. Presently, canton staff are generally not monitoring EPI activities at parish level. The EPI role of health inspectors will similarly need to be clearly defined.

Once the roles are better defined, then specific technical inputs like EPI Mid-level Managers Courses will be needed to enhance local capacity.

B. Delivery Strategies

The MSP has decided to discontinue national-level vaccination days. PREMI is to be phased out by the end of 1989. The new EPI strategy calls for provincial-wide vaccination campaigns, house to house vaccination in areas of concentrated population, and routine immunization in health facilities.

In Salcedo, auxiliary nurses from the canton hospital visit house to house two days per week, revisiting each house within the canton "capital" every three months. In parish "capitals", houses are visited one day per week. On these visits, vaccination is not performed. Infants are

channeled to the health facility, depending on their immunization records, and ill children are referred as well. The effectiveness of house to house visits for motivation, as an alternative to house to house vaccination, should be studied in areas where people have access to services, but are not using them. Similarly, the effectiveness and sustainability of house to house vaccination, given the anticipated staff burnout, needs to be established. If, in fact, sustainability is not an important consideration (as possibly in the case of a rapid acceleration of polio vaccination coverage before 1990), this should be made explicit.

Presently, vaccination in response to "spontaneous demand" is the inter-campaign strategy. This is too passive a strategy to contribute to higher coverage. Greater use should be made between provincial campaigns of outreach services in nearby areas of relatively concentrated population. Schools and churches are more widely distributed than health facilities and can be used as vaccination sites.

School children can systematically be used to inform and refer eligibles to be immunized on a specific date at the school. Children enjoy competition. As has been tried successfully in the Ivory Coast and Tanzania, classes within the school can compete with one another for the distinction (and reward: a volleyball or trophy, for example) of having referred the most infants and women for immunization. A few simple lesson plans with concrete activities could be designed in Quito or provincially.

A more active outreach program in relatively nearby areas would allow the campaigns to concentrate on the truly hard to reach population lacking access.

Vaccinating in response to "spontaneous demand" overlooks the need to create demand. Some of the health facilities visited make little effort to work through community leaders and promoters which already exist.

However, vaccination in response to "spontaneous demand" can be very much more effective than currently practised if certain principles and norms are more widely circulated and followed. In some facilities, systematic screening and referral for vaccination does not take place. (A sample algorithm for systematic screening, health education, and referral appears in Annex 2.) Some causes of missed opportunities for immunization, observed on this field trip, included:

- invalid contraindications in a four-month old (e.g. candidiasis);
- use of measles vaccination only on Sundays and Wednesdays;
- fear of opening a vial for even one child (in Pujilí, vials are opened only for 4-5 children).

With all the varied complementary delivery strategies, administration of TT has been relatively neglected. While Cotopaxi is a high mountainous area and health staff claim not to see cases of tetanus either in newborns or in adults, areas of high neonatal tetanus risk have been identified elsewhere (report of PAHO consultant Dr. C. Silveira). Neonatal tetanus

is considered to be a significant cause of preventable neonatal mortality (Tangermann, et.al and Rutstein, et.al), causing up to 5% of deaths nationwide (Rutstein) in children born during the last five years. The need to intensify efforts to immunize all women of childbearing age with TT in high-risk areas was reiterated in November 1988 by the PAHO EPI Technical Advisory Group for the Eradication of Poliomyelitis.

In high-risk areas where pregnant women do not regularly attend ante-natal clinics, a 5-dose TT schedule should be implemented. TT should be available on each immunization campaign. The WHO-recommended schedule is in Annex 3. To ensure than females are protected prior to their first pregnancy, TT could be started from age 13. To focus limited resources further, the upper age limit could be 40. While possibly at higher risk due to birthing practices, women over 40 have low fertility rates.

In 1987, the statistics unit in Quito reported 371,000 first and 223,000 second prenatal consultations. Although this number of first visits exceeds the annual number of births, it appears that coverage with prenatal consultations is very high. If every opportunity were seized to screen pregnant women at each contact and vaccinate them when appropriate, neonatal tetanus could be rapidly eliminated.

Long-lasting TT protection cards (Annex 4) need to be used, since multiple doses are needed over a long reproductive span. Since it will be needed to record TT immunizations given over many years, the card should be designed to encourage mothers to retain it. Culturally-important colors and symbols, such as religious, fertility, or goodluck symbols, should adorn the card. A clear plastic envelope should be provided to protect it.

TT should be offered to mothers bringing their children for vaccination and on every contact with the health services. Where vaccination of only pregnant women is followed, a booster dose at the time the newborn later receives measles vaccination would make sense given the required interval.

Td or DT in primary schools, especially in areas of high enrollment, should be strengthened, since this will help solve the neonatal tetanus problem in the long-term. Two doses in first grade, followed by a single dose in grades two, three, and four, would likely provide lifelong immunity.

Just as BCG documentation is now required for birth registration, documentation of one recent dose of TT prior to issuance of a marriage certificate could be required.

Another vaccine-specific delivery strategy relates to BCG. In some hospitals which do not use all the EPI vaccines, BCG is given to newborns but sometimes recorded on a slip of paper. Instead, hospital staff should use the MCH/EPI carnet to record the BCG, since this will then invite the child to enter the preventive health system. This is especially important in the many areas now reporting much higher coverage with BCG than with the first dose of DPT or polio. In 1987, 30% of births occurred in hospitals, health centers, and sub-centers.

C. EPI Norms

The present EPI norms (Annex 5) given to this writer do not reflect internationally-accepted policies in some respects. The changes recommended are entered directly onto Annex 5 and include:

- Shorten the interval between DPT/polio doses to four weeks.

- Shorten the interval between the two doses of TT to four weeks and include information on TT3, 4, and 5 (as per Annex 3).

- TT can safely be given at any month of pregnancy, so references to the fifth and seventh months should be removed. (This is a major factor contributing to low TT coverage and represents a major cause of missed immunization opportunities.)

- Include information on TT or DT to school children.

- Include .05 ml and .1 ml for children less than and more than 12 months, respectively, for BCG.

- Include three drops for some vaccine manufacturers (e.g. Connaught Polio).

- DPT should be given in the antero-lateral aspect of the thigh where there is no danger of accidentally hitting a major nerve or blood vessel.

- Eliminate contraindications for BCG (newborns weighing less than 2500 grams), Polio (vomiting and diarrhea), and TT (1st trimester). Some 12% of births discharged from "Isidro Ayora" Maternity Hospital in Quito in 1983 were below 2500 grams (Tangermann, p. 65).

- Add a note that the polio dose administered to a child with diarrhea should not be counted as part of the series.

- Include a dose of polio at birth.

- Eliminate 40 dose vials of DPT and TT.

When Quito reissues the norms, there are a few additional general instructions which should be included:

- Babies need to start their vaccinations at birth and finish before 12 months of age, so they can be protected before the diseases strike.

- It is safe and effective to vaccinate an eligible child with all vaccines on the same day.

- Do not restart an interrupted vaccination series. Give the next dose.

- Open a vial even for one child.

- Measles vaccination should be given unless the child has a documented history of measles or dated measles vaccination.

Some guidelines on the reuse of opened vials are also needed.

Also given the current lack of DPT in Ecuador, the MSP needs to give some guidance to regions now planning local campaigns. The writer recommends that campaigns be delayed until DPT can be included.

A KAP survey in Ecuador revealed the importance of perceived contraindications. Nearly 28% of children not on target for age had not been brought for vaccination by their mother due to illness. Another 18.5% were brought but were denied vaccination because the child was ill. Useful reference materials on EPI in Spanish appear in Annex 6 and include the WHO recommendations on indications and contraindications.

D. Monitoring Immunization Coverage

A majority of health facilities visited were not yet aware that the annual target figures should be based on 100% of the eligible population. Dr. Litardo introduced the new graph (Annex 7) for monitoring coverage during the year. (Data collected at some parish and canton levels are not being used for monitoring at present.) The graph was well received and will hopefully increase the use to which the collected data are put.

At canton level, monthly parish data are not consolidated for the year and certainly are not used for tracking progress within the canton. At best, canton hospitals track only their own achievements. Each canton hospital should now use a summary graph to track total canton figures and separate graphs for each parish within the canton. Similarly, the province should monitor each canton separately as well as total provincial coverage. Presently the Cotopaxi Regional Health Directorate waits until the end of the year before consolidating coverage for each canton. Graphs should be displayed on the wall.

The graph is useful at province level for another reason. The present system of designating as "critical areas" those cantons with less than 50% coverage of DPT/Polio 3rd dose can be misleading. It is very possible that the provincial EPI Chief may assume, because four of five of his cantons average a 60% coverage according to the routine monitoring and evaluation form in use, that his provincial coverage is over the critical 50%. But this may not be the case if the remaining canton has a low coverage and a high proportion of the total provincial population. The graph will reveal this shortfall early on, whereas the individual canton statistical sheets will not.

For these same reason, the MSP should reconsider its method of designating "critical areas" to reflect the fact that, for example, a coverage of 60% in Guayas (2.6 million population) is more important than 60% in Carchi (.15 million). Annex 8 gives a hypothetical example. Using the present system, canton #2 would be identified as a "critical area". However, canton #1, with its larger population, contains more than half of the non-vaccinated population in the province and nearly twice as many non-vaccinated as in canton #2.

Identification of critical areas should be expanded from percent coverage to include also analysis of the number of non-vaccinated persons. This is especially important in provinces in which each canton exceeds 50% coverage, since under the present system based on percent coverage no cantons would be identified at provincial level for extra attention.

Occasionally, there is a need to conduct a 30-cluster coverage evaluation survey in an administrative area. This is particularly the case when coverage data are incomplete, absent or of doubtful quality. The survey can validate the routine reports or it can be used to identify reasons for inadequate coverage. Surveys done in the past in Ecuador have been unnecessarily complex in their design. Seven children between the ages 12-23 months should be surveyed in 30-clusters. Using COSAS-P and COSAS-T computer programs (which the writer left with PREMI), it is possible to generate the few important tables, including an analysis of missed opportunities for immunization. A revised and improved Coverage Survey module has been issued by WHO Geneva in December 1988 as part of the EPI Mid-level Managers Course. Funds should be located for its translation into Spanish.

Once the TT policy is changed, the current form should have TT1, 2, 3, 4, and 5 and be categorized by "pregnant women", "other women of childbearing age", and "other females". A lifelong TT card would be needed as well.

Annex 9 shows some indicators recently developed on a consultancy in Bolivia, which may be of use in Ecuador with appropriate modifications.

As regards drop-out rates, in the areas visited the team noticed that the rate was fairly low when one totaled DPT/Polio 1st dose in <u>all</u> ages and compared it to DPT/Polio 3rd dose in <u>all</u> ages. The problem is <u>not</u> so much drop-out, but the failure to provide early 3rd doses to children less than 12 months of age. Nationwide, approximately 40% of 3rd doses are administered to children greater than 12 months old.

E. Supervision

Supervision is the key to getting things done. A good supervisor identifies areas in need of improvement and tries to remedy problems through on-the-spot training.

Field supervision appears to have been the weakest link in the EPI. The Third National EPI Evaluation conducted jointly by the GOE and PAHO in September 1985 found that the very concept of supervision as a continuous

form of education did not exist. Supervision has become even more important with the current attempt to program routine immunization services at local levels.

Since 1985, the five-year EPI National Plan has been elaborated and funds for improved supervision are now available. The first task for the MSP is to determine who will be responsible at each level, and with what frequency, for supervision. At present, routine supervision has not yet been implemented. The EPI Director in Cotopaxi Province has planned only two supervisory field trips of three days each in 1989.

In many countries, supervision is interpreted to mean a series of largely administrative tasks, such as vaccine supply, payment of salaries, etc. However, to raise coverage by overcoming present deficiencies (passivity, missed opportunities, invalid contraindications) will require strong technical supervision. A cold chain supervisory checklist is in use in Cotopaxi. The writer has prepared a more general supervisory checklist (Annex 10) to be used at operational levels. The MSP should consider modifying it, as necessary, and field-testing it or any other checklist. Already Dr. Litardo has used it twice on the field trip and found it focused on the key information and raised many important topics for in-service training. The checklist required 45-60 minutes for completion in each site. The advantage of a checklist over a narrative report is that one can quantify the answers (e.g., the number of cold chains in a larger area which can be classified as "good" based on a number of "yes" answers) and can easily compare performance in the same facility over time.

A program of field supervisory visits needs to be prepared in advance at each level and filed at the next higher level. A written checklist should be submitted to the higher level and comments fed back to the lower level. (For example, Dr. Litardo's field reports should be sent by the MSP to the relevant provincial officials). A notebook should be maintained at each level for the supervisor to record immediate comments. Training in supervision should be conducted.

A new feature of supervisory visits is to check routinely for missed opportunities for immunization. Dr. Litardo has been trained to do this. Not a single opportunity had been missed in immunizing the last eight children aged less than three years who had attended Antonio José Holguin Sub-Center on the day of the field visit. A partial list of items which a supervisor should carry to the field appears in Annex 11.

Dr. Litardo's job description appears in Annex 12 and could serve as a model for other supervisors.

Checklists and "memory aides" to be left with operational staff are another means of providing in-service training. An example of a "memory aid" outlining cold chain problems and solutions appears in Annex 13.

Another opportunity to provide in-service training is during the monthly visit by all the rural health staff to Latacunga to collect their wages. EPI in Quito should prepare a menu of possible discussion topics.

F. Cold Chain

The cold chain is very well-organized and includes some innovations this writer has not previously seen, such as the use of inexpensive bags of ice. As the EPI begins to extend its network of refrigerators, Annex 14 ("Buyer's Guide to Selecting Refrigerators") may come in handy. The cold chain will become relatively more difficult to manage once EPI shifts from campaigns to routine services, and health facilities have a continuous stock of vaccine to store, rotate and use over time.

Some of the findings of the field visit have relevance to the national EPI:

- Apparently this relatively nearby regional cold store has never been supervised.

- Staff have no spare parts at all. Two kerosene refrigerators are dysfunctional for lack of wicks. Staff do not believe EPI in Quito has a stock of wicks.

- Central staff should write on the despatch forms the expiry date of the vaccine, and not just lot number, when sending vaccine. This will help supervisors once the vaccine is used up, to determine whether vaccines arrived with sufficient time before expiry.

- Cotopaxi staff requested only 1000 doses of TT in April 1988 but received 4000 doses in May. The consequence of receiving unsolicited vaccine was an excess in Cotopaxi (and possibly a shortage elsewhere?). 2530 doses remain in stock and will expire next month before they can be used.

- As much as possible, EPI should request Japanese BCG vaccine, as it is the least reactogenic and generally has a two-year life (versus one year with most other lyophilized BCG products). Some staff do not know that a half dose (0.05 cc) should be used for children less than 12 months old. While it is not so important with Japanese BCG, the reduced dose is essential with the more reactogenic European products such as Pasteur. Liquid BCG with its short 15-day expiry is not reaching the periphery before expiration.

At the request of the EPI Director in Quito, the writer has prepared Annex 15: "Steam Sterilizers and Reusable Syringes/Needles." EPI should order some of these units for trial at canton or regional hospitals. Costs and order numbers are provided in the Annex. The equipment can help solve the problem of inappropriate reuse of disposable syringes and needles due to inefficient stock or delays in resupply.

Observations with more local significance within Cotopaxi Province are as follows:

- Reconstituted measles vaccine was being used the following day in Salcedo canton hospital.

- Staff in some locales do not understand how to adjust the thermostat in the correct direction to make the refrigerator colder. (Salcedo)

- The refrigerator door does not seal well in Salcedo.

- A random comparison of the "cardex" polio (4900 doses) versus the quantity actually in stock (2800 doses) showed an enormous discrepancy. This is serious since the "cardex" count is used when reordering vaccine, and, in this case, would result in a serious under-ordering. Staff should be told to do an inventory monthly to make sure the "cardex" remains accurate.

- Vaccine carriers returned from the field with only three icepacks, some of which were less than half full. The cold chain technician should take care that all icepacks are full and that the complete set are used.

- The cold chain technician should submit his supervisory visit reports to the EPI Director in the region and get his signature.

- Although Victoria sub-center is less than 30 minutes from Latacunga, the cold chain technician has not visited it for 12 months.

G. Other Points

Several data sets with neonatal mortality exist and have been examined by Tangermann and Rutstein. Unfortunately, the data which are said to exist by age at death in days have been aggregated into categories which mask the potential importance of neonatal tetanus as a cause of death. The data should be analyzed by geographic area and death in days since excess deaths above the declining mortality curve between days 4 and 14 are likely due to tetanus.

A recent REACH consultancy on "Cultural Perceptions of Neonatal Tetanus and Programming Implications, Bolivia" studied beliefs in three different ecological/ethnic areas. As Ecuador also shares a large Quechua population with Bolivia, the few summary pages concerned with the Quechua and general recommendations are attached as Annex 16. The full report discusses for the Quechua the local names for neonatal tetanus, symptoms, birth practices, perceived causes, traditional treatment, rituals, perceptions of vaccines, traditional concepts useful for immunization, and immunization strategies. It is available upon request.

As vaccination coverage is lowest in Esmeraldas, the MSP intends to use Dr. Litardo in the province in 1989. REACH supports this plan. Neonatal and early neonatal mortality rates are also higher on the coast (Tangermann, p. 38) than in the Sierra. However, as Esmeraldas accounts for only 3% of the total population of Ecuador, raising coverage there from current levels (31%) even to 100% will only raise national coverage figures by two percentage points. For this reason, REACH would like the MSP to use Dr. Litardo's services also in some of the more populated neighboring coastal provinces.

Two Cherokees have been repaired, as planned, with REACH funds. Since the MSP insurance policies are due to expire in January, it is necessary to ensure the vehicles remain insured. No difficulties with cash flow were identified.

VII. Recommendations

See Executive Summary (Section I).

VIII. Follow-Up

1. Victor Mora should establish that the two Cherokees are re-insured by the MSP, without which Dr. Litardo is not to travel to the field.

2. Victor Mora and Dr. Litardo are to send REACH evidence that the latter has paid the "Impuesto a la Renta", aportaciones al I.E.S.S., y Fondo de Reserva--as was agreed in the REACH contract with Dr. Litardo.

3. The writer will request that PAHO/Washington regularly send the EPI Newsletter to Dr. Jacobo Moreta, Dr. Irlanda Ordónez, Lcda. Lourdes Pazmiño, and Dr. José Litardo at #340 Manuel Larrea, Ministerio de Salud Pública, Quito.

Annex 1

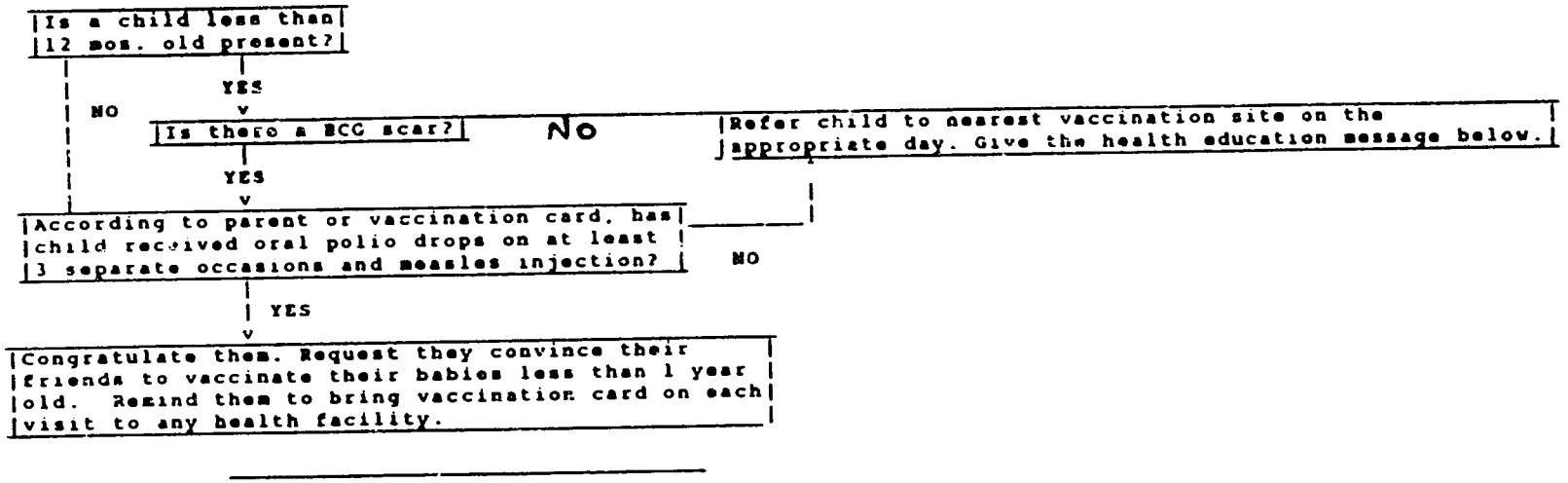
Persons Visited

Name	Title	Affiliation	Duty Station
Mr. Edmund Andrews	P.S.C.	USAID	Quito
Lcdo. Jaime Arias	Chief, Health Education	MSP	Latacunga
Dra. Rocio Arizaga	Director, Canton Canton Hospital	MSP	Pujilí
Mr. Joseph Baldi	Coordinator, PREMI	USAID	Quito
Dr. Oswaldo Barrezueta	National Technical Advisor	PAHO	Quito
Mr. Jaime Benavente	P.S.C.	USAID	Quito
Lca. Teresa Brazales	Health Educator	MSP	Latacunga
Mr. Galo Cevallos	Cold Chain Technician	MSP	Latacunga
Mr. Eduardo Contreras	Communication Evaluation Advisor	PREMI/ INFFA	Quito
Dr. Eduardo Custode	Provincial Director of Health	MSP	Latacunga
Lca. Sara Duran	Canton Nurse	MSP	Salcedo
Mr. William Goldman	Chief, Family Health Division	USAID	Quito
Dra. Guadalupe Guerrero	Epidemiologist	MSP	Latacunga
Dr. Lenin Guzman	Health Officer	UNICEF	Quito
Dr. Nestor Icaza	Physician	MSP	Antonio José Holguin
Dr. José Vicente Litardo	EPI Field Coordinator	REACH	Quito
Mr. Victor Hugo Mora	Chief Accountant	PREMI	Quito
Dr. Jacobo Moreta	EPI Director	MSP	Quito

Dra. Susana Moscoso	Acting Director Canton Hospital	MSP	Salcedo
Dr. Eduardo Navas	Consultant	USAID	Quito
Dr. David Nelson	Training Supervisor Advisor, PREMI	USAID	Quito
Mr. Gustavo Nieto	Statistician	MSP	Quito
Dra. Irlanda Ordoñez	EPI Medical Officer	MSP	Quito
Mrs. Ana Ortega	Statistician	MSP	Latacunga
Dr. Arturo Ortíz	EPI Chief	MSP	Latacunga
Dr. Patricio Rosero	EPI Medical Officer	MSP	Quito
Dra. Marcia Ruiz	Director, Sub-Center	MSP	La Victoria
Mrs. Mercedes Sandoval	Auxiliary Nurse	MSP	Antonio José Holguin
Mrs. Fanny Santamaria	Auxiliary Nurse	MSP	Salcedo
Dra. Magdalena Vanoni	Director, Prevention and Protection	MSP	Quito
Dra. Christina Vargas	Pediatrician	MSP	Salcedo

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.

Annex 3

TT Immunization Schedule for Women

Dose	When to give TT	Percent Protected	Duration of Protection
TT-1	at first contact or as early as possible in pregnancy	Nil	None
TT-2	at least four weeks after TT-1	80	3 years
TT-3	at least 6 months after TT-2 or during subsequent pregnancy	95	5 years
TT-4	at least one year after TT-3 or during subsequent pregnancy	99	10 years
TT-5	at least one year after TT-4 or during subsequent pregnancy	99	for life

Source: Update: Neonatal Tetanus, WHO, Geneva, September 1988.

Annex 4

TETANUS PROTECTION CARD

Family Name _____

First Name _____ Year of Birth _____

Address _____

District _____

State _____

CHILDHOOD DPT/DT IMMUNIZATION

Number of Doses _____

No information _____

ADULT TETANUS TOXOID

	DATE		
	Day	Month	Year
1st DOSE	/	/	
2nd DOSE	/	/	
3rd DOSE	/	/	
4th DOSE	/	/	
5th DOSE	/	/	

If you did not receive immunization before, you need two doses of tetanus toxoid (with four weeks interval between) and one dose in any future pregnancy.

Source: Update: Neonatal Tetanus, WHO, Geneva, September 1986.

MINISTERIO DE SALUD PUBLICA

PROGRAMA AMPLIADO DE INMUNIZACIONES

1. ESQUEMA DE VACUNACION

TIPO DE VACUNA	E D A D	Nº Dosis	INTERVALO ENTRE DOSIS	R E F U E R Z O
B. C. G.	Recién nacido	1	----------	Se recomienda una dosis en edad escolar.
D. P. T.	A partir de los dos meses	3	~~2 meses~~ 4 semanas *	Se recomienda una dosis después de un año de aplicada la tercera dosis
ANTIPOLIOMIELITICA	Recién nacido A partir de los dos meses	1 + 3	~~2 meses~~ 4 semanas *	
ANTISARAMPIONOSA	A partir de los nueve meses	1	----------	----------
TOXOIDE TETANICO	~~1era. dosis: al 5to. mes de embarazo~~ ~~2da. dosis: al 7mo. mes de embarazo~~	2	~~De 6 a 8~~ 4 semanas	- intervalo de un año entre 3RD 4TA y 5TA dosis - Una dosis en el siguiente embarazo o después de un año de aplicada la 2da. dosis. - para escolares . . .

* *Con las vacunas DPT y Antipoliomiética, se aceptará un intervalo mínimo de 6 semanas*

Annex 5

2. RESUMEN DE LAS NORMAS DE VACUNACION

TIPO DE VACUNA	DOSIS	VIA Y SITIO DE ADMINISTRACION	MATERIAL A UTILIZARSE	CONTRAINDICACIONES
B. C. G.	• 0.5 <12 meses • 1 ≥12 meses ~~0.1 cc.~~	Intradérmica hombro derecho	Jeringuilla Omega microstat aguja No. 26 x 3/8" 25 x 1/8	~~Recien nacidos con peso menor a 2.500 g.~~ Lesiones cutáneas graves generalizadas
D. P. T.	0.5 cc.	Intramuscular región glútea	Jeringuilla con aguja No. 22 o 23 G.	Enfermedades febriles agudas (con temperatura superior a 39°C.) Antecedentes convulsivos
ANTIPOLIO-MIELITICA	2 gotas (o 3 gotas con algunos productos)	Oral	Gotero	Enfermedades febriles agudas (con temperatura superior a 39° C.) ~~Vómito, diarrea graves~~
ANTISARAMPIONOSA	0.5 cc.	Subcutánea brazo—izquierdo	Jeringuilla con aguja 25 x 5/8	Enfermedades febriles agudas (con temperatura superior a 39°C.)
TOXOIDE TETANICO	0.5 cc.	Intramuscular brazos o glúteos	Jeringuilla con aguja No. 22 o 23 G.	~~No debe administrarse en el primer trimestre del embarazo.~~

Annex 5 (continued)

Annex 6

Reference Materials (used on EPI/ARI Workshop in Bolivia)

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 Fric. 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 Mondial 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 bibiografica. 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 corso 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 Internationl, 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 "Sterlization 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 guia para el diagnóstico de seis enfermedades objeto del PAI (juego de diapositivas). OPS/Washington. 1988. *

* available in English and Spanish

MINISTERIO DE SALUD PUBLICA DEL ECUADOR
DIRECCION DE FOMENTO Y PROTECCION
PROGRAMA AMPLIADO DE INMUNIZACIONES

Annex 7

GRAFICA PARA CONTROLAR LA COBERTURA DE INMUNIZACION DE LOS NIÑOS MENORES DE 1 AÑO

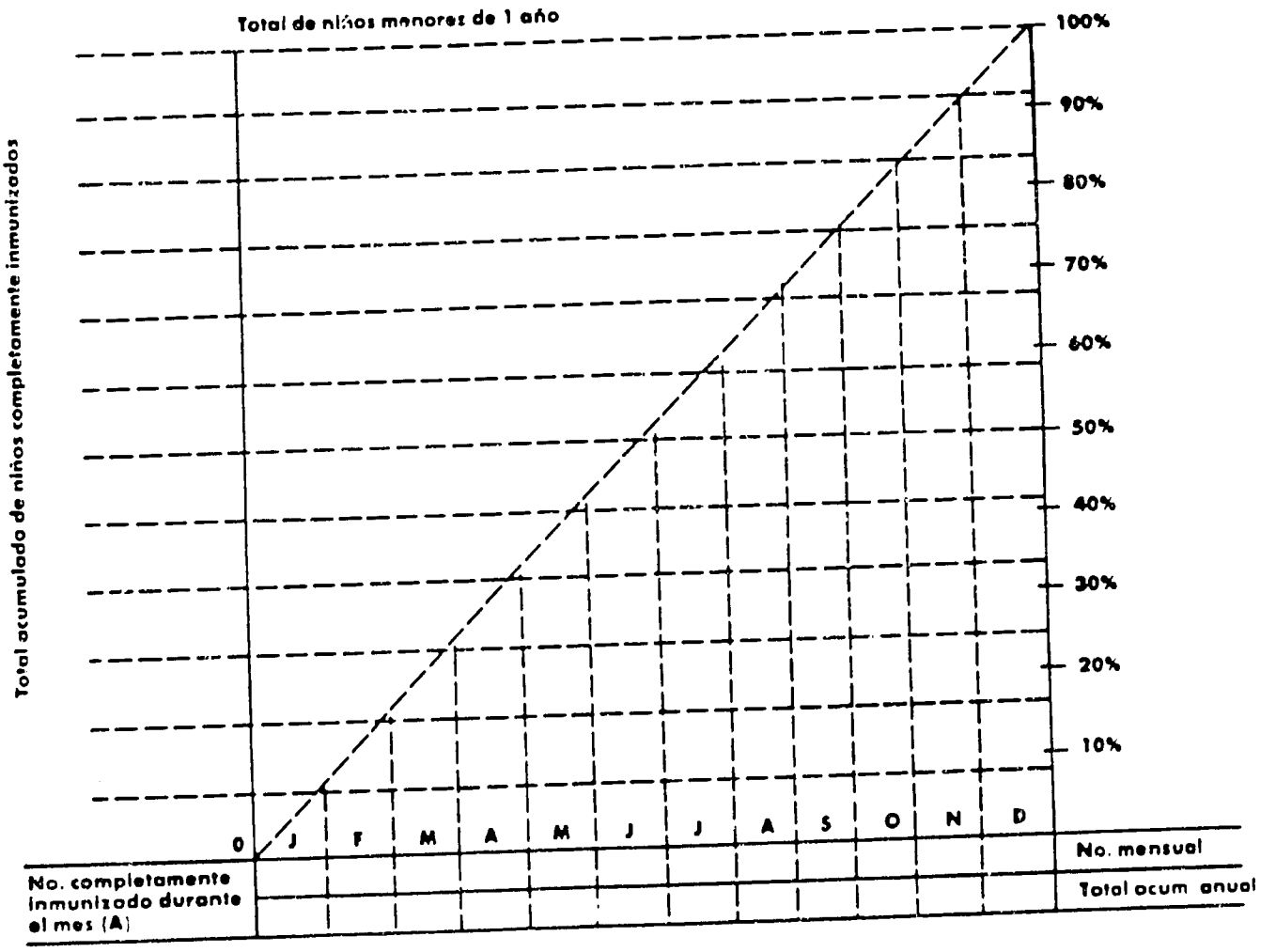
NIVEL (NACIONAL, PROVINCIAL, CANTONAL, LOCAL) _____ TIPO DE UNIDAD _____

Año _____

Vacuna _____

(INMUNIZACION COMPLETA = _____ dosis)

Total de niños menores de 1 año _____



1. Anotar en el recuadro "A" los datos del número de niños completamente inmunizados durante ese mes y el total acumulado hasta el mes correspondiente.

2. Representar gráficamente el progreso en el gráfico marcando con una "x" el total acumulado al final de cada mes y unir con línea entera.

Hypothetical Coverage by Cantons Within a Province

	Population	% Coverage	Number Vaccinated	Number Not Vaccinated
canton 1	20,000	50	10,000	10,000
canton 2	10,000	45	4,500	5,500
canton 3	10,000	80	8,000	2,000
canton 4	7,000	70	4,900	2,100
	47,000 (100%)		27,400 (58%)	19,600 (42%)

Annex 9

EPI Coverage Indicators (Bolivia)

A. USAID Indicators for FY 1988

Tier 1: (obligatory)

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

	Source
- 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
- Polio 3
- Measles

(Source: 30-cluster survey)

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

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

% 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)

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

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

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

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

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

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:

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

(Source: EPI 8A, p.1)

Annex 10

EPI Supervisory Checklist for Operational Levels

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?

9. Knows correct Ministry policies on:
   a. age for vaccination by dose? Yes No
   b. vaccination of ill children? Yes No
   c. T.T. for women 15-44 and in any month of pregnancy? Yes No

10. What do you do with used disposable syringes/needles?

B. Review of Records

1. Frequency of vaccination sessions?

2. Vaccination administered on outreach? Yes No

3. Duplicate vaccination cards or register kept? Yes No

4. Sufficient stock of: syringes/needles/cotton Yes No
   vaccination cards/forms? Yes No

5. Date of last supervisory visit to this facility? _____
   By whom? (name and title)
   _____

6. Date of last supervisory visit to lower level? _____
   By whom? (name and title and where)
   _____

7. Are vaccination statistics?
   a. calculated and reported by dose and age? Yes No
   b. accumulated for year in progress? Yes No
   c. compared to annual targets? Yes No
   d. used to estimate infant coverage? Yes No
   e. displayed on wall Yes No

8. Based on last 10 child vaccination cards:
   a. Were more than 8 children given all vaccinations appropriate to their age? Yes No
   b. were more than 1/2 of last vacinees children less than 12 months old? Yes No

C. Observations

1. Do staff screen for vaccination status of each child and woman, and either vaccinate or appropriately refer? Yes No

2. Is vaccination education given to each person on:
   a. importance of vaccination? Yes No
   b. some vaccine-preventable diseases using local names? Yes No
   c. need for 3-4 visits before 12 months age? Yes No
   d. where and when to get next doses? Yes No

3. Are vaccination education materials on walls?	Yes	No
4. Is vaccintion 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)	Yes	No
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? If "Yes" specify.	Yes	No

E. Exit Interviews

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

	Woman answers: Correctly	Incorrectly
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 11

Sample list of items to carry on supervisory trips

1. MSP EPI norms and guidelines (schedules, contraindications, etc.)
2. Supervisory checklist
3. Supply of forms, vaccination cards, graphs
4. Targets and achievements
5. Health education materials (posters, etc.)
6. Extra thermometers
7. Extra icepacks
8. Frozen reference vials of different manufacturers' DPT, TT and DT
9. Key telephone numbers

SCOPE OF WORK FOR THE REACH EPI FIELD COORDINATOR

Based on activities in the Five Year EPI Plan, the Field Coordinator will help the EPI to execute the following:

- Participate in planning and implementing a supervisory system for each level of EPI which includes supervisory checklists, analysis and consolidation of identified problems, and feedback of results and proposed solutions.

- Supervise field activities approximately 15 working days per month on visits to health units in selected provinces.

- Collaborate in planning strategies for accelerated implementation in collaboration with provincial authorities, such that all health facilities permanently offer vaccinations and conduct outreach activities in underserved areas.

- Monitor the integrity of the cold chain down to local levels by assuring proper maintenance of equipment and storage of vaccines.

- Implement the current re-supply system to ensure adequate quantities of vaccine and materials at provincial and local levels.

- Ensure a supply system of cold chain spare parts in coordination with those responsible for maintenance at provincial level.

- Participate in planning and execution of training courses organized by provincial technical teams.

- Strengthen routine epidemiological surveillance at provincial, canton, and local levels and improve timely case detection and notification, outbreak investigation and control measures.

- Strengthen the consolidation and local use (including graphic presentations) of routinely-collected information for program monitoring at provincial levels.

- Ensure field compliance with EPI norms and procedures.

- Identify the need for and participate in field studies and periodic evaluations.

- Provide input based on field experience in the design of basic guidelines for national re-programming.

- Ensure the flow and utilization of funds to provincial and local levels.

- Report regularly to the corresponding levels of MSP.

- The field coordinator will belong to the EPI team and therefore will be under the supervision of the EPI Chief. The coordinator will travel as necessary, after presenting his schedule of planned field activities to the EPI Chief for approval. The field coordinator will collaborate during his supervisory visits with other MCH problems.

- Engage in other duties as considered necessary by the Child Department.

Annex 13

Memory Aide: Cold Chain Problems and Solutions

1. Vaccine over or under-stocking

   - o Maximum of 1 1/2 months supply of each vaccine
   - o Regular monthly cycle of vaccine deliveries
   - o Inventory and vaccine usage records kept

2. Vaccine stock rotation

   - o Different expiry dates: expiring first, use first
   - o Same expiry date: "First in, First out" principle
   - o Write date of delivery on vaccine boxes
   - o Label older vials with two points, newer ones with one point

3. Location of vaccine in the refrigerator

   - o No vaccine in door or freezer
   - o Never freeze DPT, TT or DT.

4. Keeping the refrigerator cold

   - o Thermometer read and recorded twice daily
   - o Adjusting thermostat dial to control temperature between +2°C and +8°C.
   - o Unused space full of sealed undrinkable water bottles
   - o Icepacks in freezer
   - o No food or drink
   - o Avoid unnecessary door openings: Cold air falls out.

5. Looking after your refrigerator

   - o Make one person responsible
   - o Defrost when frost exceeds 10 mm (.4 inch) thickness

6. Organising the vaccination session

   Put day's estimated vaccine requirements in vaccine carrier

   - o Vials in use in covered metal tray on ice
   - o Protect from light

7. After the vaccination session

   - o Reconstituted BCG and measles destroyed at day's end
   - o Label remaining vials for first use next day

8. Protect DPT, TT and DT from freezing

- Let icepacks sit ten (10) minutes at room temperature before loading these toxoids into cold boxes or vaccine carriers

9. Packing cold boxes

- Use icepacks, not blocks of ice which can soak labels off
- Fill one-third volume with icepacks
- Line bottom, top, and sides with icepacks

10. Prepare for cold chain failures

- Make contingency plans now.

Buyer's Guide to Selecting Refrigerators

For areas with:

Strategy	Continuous 24-hour electricity available	at least 12 hours electricity available daily	at least 8 hours electricity available daily	electricity unreliable but gas available
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.

Annex 15

Steam Sterilizers and Reusable Syringes/Needles

A. Suitable for Canton Hospital giving 44 injections per day in the same room:

Item	No.	P.I.S. #	Cost
- Sterilizer Kit A	1	E 7/31	$70.15
(single rack holds 44 syringes and 50 needles; includes sterilizer, forceps, timer, sharpening stone, soap box, and vaccine vial holder.)			
- Sterilizer syringe Kit A	1	E 7/33	23.01
(comes with all syringes/needles needed for 1 year)			

			$93.16
			plus additional shipping

B. Suitable for Canton/Regional Hospital giving 88 injections per day in the same room:

Item	No.	P.I.S. #	Cost
- Sterilizer Kit B	1	E 7/32	$84.74
(double rack holds 88 syringes and 100 needles; includes sterilizer, 2 forceps, 1 timer, 2 sharpening stones, 2 soap boxes, 1 vaccine vial holder)			
- Sterilizer syringe Kit B	1	E 7/34	41.78

			$126.52
			plus additional shipping

N.B. Average cost per fully immunized child (1986 prices) is $.0697 using reusable equipment (including syringes, sterilization, and maintenance) versus $.0810 (syringes and maintenance).

Remember to request booklets in Spanish.

For areas with hard water (heavy load of minerals), one water filter ($18.62) should be ordered per sterilizer. It is E 7/28 in the Product Information Chart.

Annex 16

Excerpts from

"Cultural Perceptions of Neonatal Tetanus
and Programming Implications, Bolivia"

I. EXECUTIVE SUMMARY

1. Introduction

Tetanus vaccination programs are more effective, sustainable and culturally acceptable in Bolivia, as well as other parts of the world, if health personnel understand how peasants perceive tetanus and vaccinations. Still more essential, health educators of Bolivia need to explain tetanus and its preventive vaccinations in concepts that Aymara, Quechua, and Tupi-Guarani peoples can understand. (Tupi-Guarani is used to designate the cultural area of the Department of Santa Cruz).

After reviewing literature on neonatal tetanus (NT), the author did not find any studies which explained how peasants perceive NT and tetanus toxoid (TT) either for Bolivia or other parts of the world. This research void hinders vaccination programs and cross-cultural communication on the need for women from 15 to 44 years old to be vaccinated. As a step towards improved understanding, the author served as leader of a small team to investigate how the Aymara, Quechua, and Tupi-Guarani perceive NT and TT vaccinations.

This report contains practical information on how to strengthen TT delivery to peasants of Aymara, Quechua, and Tupi-Guarani cultures. It includes detailed information on how these peasants perceive tetanus and TT vaccination and suggests ways that native concepts can be used to educate and motivate them to participate in these programs.

2. Key Findings

Department of Cochabamba (predominantly Quechua culture)

1. NT is prevalent in the Department of Cochabamba with the most cases from our studies and MPSSP reports in the Chapari region. Many cases of NT are not reported because health personnel do not recognize symptoms of this disease and peasants prefer treatment by ritualists. A priest in Capinota reported ten cases of NT brought to him for baptism within a two year period.

2. Quechua peasants do not have a distinct name for tetanus but sometimes refer to it as rigidity sickness (tisi onqoy).

3. Peasants perceive the causes of tetanus to be wind (wayra), fright (susto), and bewitchment (layqasqa).

4. Where tetanus is attributed to bewitchment, peasants do not consider it a disease, but rather a symbol with sacred, social, and cosmological meanings. The mother is blamed for the bewitchment. Likewise, it can be pointed out that NT is also caused by the mother's negligence in not being vaccinated.

5. TBAs cut the umbilical cord with unsterile pieces of broken ceramic. In some communities, TBAs place dirt from the door corners on the umbilical cord.

6. Peasants report that they oppose vaccinations because of reactions, lack of confidence in health personnel, and fear of being sterilized. Peasants complained about allegedly improper methods of inoculation.

7. Health personnel provide little or no explanation about tetanus and how it is prevented by vaccinations. Some auxiliary nurses did not know what tetanus was. Doctors said they had received less than one hour instruction on tetanus in medical school.

8. Quechua women learn readily in groups. Mothers' Clubs have been successfully used to educate women about TT vaccinations.

9. Community health workers (CHWs) in Cocapata play an important role in educating peasants about TT vaccinations. They also see that women follow the immunization schedule.

10. Quechua women more readily understand lessons about tetanus and TT vaccinations through legends with animals.

3. Recommendations

1. The MPSSP should continue its recent efforts to accelerate vaccination of all women from 15 to 44 years of age with TT. This effort could include women of the Altiplano, but should initially target ecological areas of known high incidence.

2. The MPSSP is encouraged to tailor health education messages concerning NT and TT vaccinations to people in each of the Aymara, Quechua, and Tupi-Guarani cultures.

3. Health educators need to focus on the specific symptoms of tetanus identified by each culture as being prevented by TT vaccinations. This is to avoid misperceptions by the peasants that all the symptoms of the culturally-defined syndromes will be prevented by TT vaccinations.

4. The MPSSP needs to provide more training and supervision in proper and sterile vaccination techniques.

5. The MPSSP should consider introducing training in cross-cultural communication skills and information about tetanus and its prevention into the curricula of medical schools.

6. The MPSSP should consider recruiting and assigning personnel in health posts who speak the native languages and understand the local culture.

7. The Episcopal Conference of Bishops of the Catholic Church should be requested to issue a statement endorsing TT immunization of women. The statement could be distributed to and read in all parishes in Bolivia and published in Presencia. Statements by Pope John Paul II in favor of immunization during his recent visit to Bolivia might be included.

8. Auxiliary nurses should train TBAs in hygienic methods.

9. Health personnel should coordinate efforts with TBAs and curanderos in promoting TT vaccinations.

10. Because birth practices are such an integral part of Aymara, Quechua, and Tupi-Guarani cultures, it is difficult to change them. It is easier to introduce an innovation such as TT vaccinations to prevent NT. The MPSSP needs to concentrate its efforts on TT vaccinations to reduce NT in the short run.