PN-ABE-571

ELIMINATING NEONATAL TETANUS AS A PUBLIC HEALTH PROBLEM IN SANTA CRUZ DEPARTMENT, BOLIVIA

March 4 - March 18, 1991

Santa Cruz, Bolivia

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ACRONYMS

A.I.D.	Agency for International Development
DPT	Diphtheria/Pertussis/Tetanus Vaccine
DSC	Department of Santa Cruz
DT	Tetanus/Diphtheria Vaccine (with full-strength diphtheria component, suitable for pre-school children)
EPI	Expanded Program on Immunization
ICC	Inter-Agency Coordination Committee (for EPI)
MPSSP	Ministry of Health (Social Welfare and Public Health)
NGO	Nongovernmental Organization
NNT	Neonatal Tetanus
NVD	National Vaccination Days
OPV	Oral Polio Vaccine
PAHO	Pan American Health Organization
REACH	Resources for Child Health Project
S&T/H	Office of Health, Bureau for Science and Technology, A.I.D.
TAG	Technical Advisory Group for EPI and the Eradication of Poliomyelitis (PAHO)
TBA	Traditional Birth Attendant (Partera)
Td	Tetanus/Diphtheria Vaccine (with reduced strength diphtheria component, suitable for schoolchildren and adults)
TT	Tetanus Toxoid Vaccine
UNICEF	United Nations Children's Fund
USAID/La Paz	A.I.D. Mission in Bolivia
WHO	World Health Organization

ACKNOWLEDGEMENTS

The REACH team encountered an excellent spirit of collaboration among all of its colleagues in La Paz and Santa Cruz. Many of these persons are listed by name in Annex 1. In particular, the team would like to express its appreciation to Dr. Joel Kuritsky, USAID Technical Advisor for Child Survival, for his crucial support before and during this assignment. The team would also like to acknowledge the enthusiastic and highly competent collaboration of Drs. Fernando Gil of the Unidad Sanitaria and German Villarroel of the Pan American Health Organization in Santa Cruz.

I. EXECUTIVE SUMMARY

At the request of USAID/Bolivia and the Ministry of Health (MPSSP), a REACH team, consisting of an epidemiologist and a communications specialist, spent nine days working with officials of the Regional Health Office devising a strategy, work plan, and budget for the elimination of neonatal tetanus (NNT) as a public health problem in the Department of Santa Cruz (DSC). USAID and the Inter-Agency Coordination Committee targeted the DSC for this special attention because, over the past several years, the great majority of NNT cases reported in Bolivia were found in this Department.

In August 1989, a REACH consultant had investigated NNT incidence and control measures in the DSC and found some serious problems, even in urban areas with easy access to health services. He observed numerous missed opportunities to immunize. The consultant made a series of recommendations, many of which the March 1991 REACH team discovered had been implemented by local health officials. The REACH team found that in the City of Santa Cruz many more opportunities were being taken to immunize women in hospitals and health centers; that an immunization team had been making house-to-house sweeps ("barridos") through the highest-risk slums; that the Children's Hospital had instituted periodic immunization in markets; and, in a joint MCH/EPI initiative supported by the Pan American Health Organization (PAHO), that 40 traditional birth attendants (parteras) had been trained and were contributing to both immunization and surveillance.

Local officials welcomed REACH collaboration in developing a systematic plan for eliminating NNT in the Department, focusing on urban areas in the first two years. The plan seeks both to reinforce many positive steps that are already being taken and to introduce much-needed training, communication support, and innovative service delivery to supplement current efforts.

Among the new strategies proposed are: a) perifocal immunization around cases of NNT, b) annual immunization of primary schoolchildren in early grades (an excellent, long-term strategy for achieving and sustaining elimination), c) extending immunization hours and locations (including a few pharmacies on a pilot basis) for immunization, and d) expanding the role of private and public physicians as surveillance agents. Communication activities are proposed with the objectives of improving the knowledge, capabilities, and actions of health personnel and the acceptance of immunization by the public. The REACH team also gave specific suggestions concerning how to reduce confusion about TT immunization among health personnel, including ideas for revising national EPI manuals, posters, and the women's immunization card.

This report is being shared with all members of the Inter-Agency Coordination Committee to secure multi-donor financial, logistical, and technical support and MPSSP political resolve in tackling and sustaining the achievable task of eliminating NNT as a public health problem in the DSC. USAID/La Paz stands ready to assist the MPSSP and collaborate with other donors in funding and providing complementary technical assistance for implementation of the NNT elimination plan. The effort in Santa Cruz will hopefully become a model for NNT elimination in other high-risk areas of Bolivia.

II. PURPOSE OF VISIT

The scope of work for this assignment developed over the course of a year of discussions, mainly among USAID/La Paz, the Office of Health (S&T/H) in AID/Washington, and the REACH Project. The essential task for a team consisting of a tetanus/epidemiology specialist and a communication specialist was to work with health officials in the Department of Santa Cruz (DSC), Bolivia, to devise a strategy, workplan, and budget for eliminating neonatal tetanus (NNT) from the Department. Based on an epidemiological assessment of the NNT problem, the strategy was to propose improvements in service delivery, training, reporting of disease occurrence, and communication aimed at both providers and the public. The team was to review what is presently being done at the operational and grassroots levels and identify ways in which to enhance the effectiveness of current strategies. The guiding principle behind the assignment was to design concrete interventions achievable in the short term which would have a lasting impact on NNT control and which the Ministry of Health (MPSSP) could implement with bilateral support from USAID to cover local costs.

In initial discussions in La Paz, USAID clarified that the Inter-Agency Coordination Committee (ICC) felt compelled to work in Santa Cruz both because of the proportionately high number of cases reported there (over half of all cases in Bolivia) and because of the relatively high number of cases of urban origin which should be relatively easy to prevent. USAID made it clear that it hoped that the Santa Cruz effort would become a model for NNT elimination in other high-risk areas of the country.

The REACH team consisted of Dr. Claude Betts (consultant) and Michael Favin (Technical Advisor, Communication). In the middle of the assignment (March 9), REACH Acting Technical Director, Robert Steinglass, replaced Dr. Betts in Santa Cruz, because Dr. Betts had previous commitments that he had to fulfill. Annex 1 lists the principal persons met on this assignment.

III. BACKGROUND

A. REACH and PAHO Collaboration

On behalf of USAID, REACH has provided technical assistance to the MPSSP regarding the control of NNT on five separate occasions since 1987. Annex 2 summarizes the major findings and recommendations from those assignments.

In 1987, REACH assembled a team of consultants (two Bolivians and two international consultants) who prepared a document on the status of child survival in Bolivia and priorities for action. One of the most significant findings of this team was the magnitude of the neonatal tetanus problem, particularly in the lowlands of Bolivia.

In February 1988, a REACH team advised the MPSSP that the policy of limiting tetanus toxoid (TT) to women in their fifth and seventh months of pregnancy be revised. The team recommended that tetanus-diphtheria toxoid (Td), also known as "DT for adults," should be given at the first contact to any eligible woman

15-45 years of age, including pregnant women regardless of month of pregnancy, as this vaccine is safe and efficacious. The team further recommended that Td should be offered to all females of childbearing age in high-risk ecological zones (tropics, sub-tropics, and possibly valleys) during the existing mass campaigns directed toward children. The MPSSP was advised to develop and use a Td card for women.

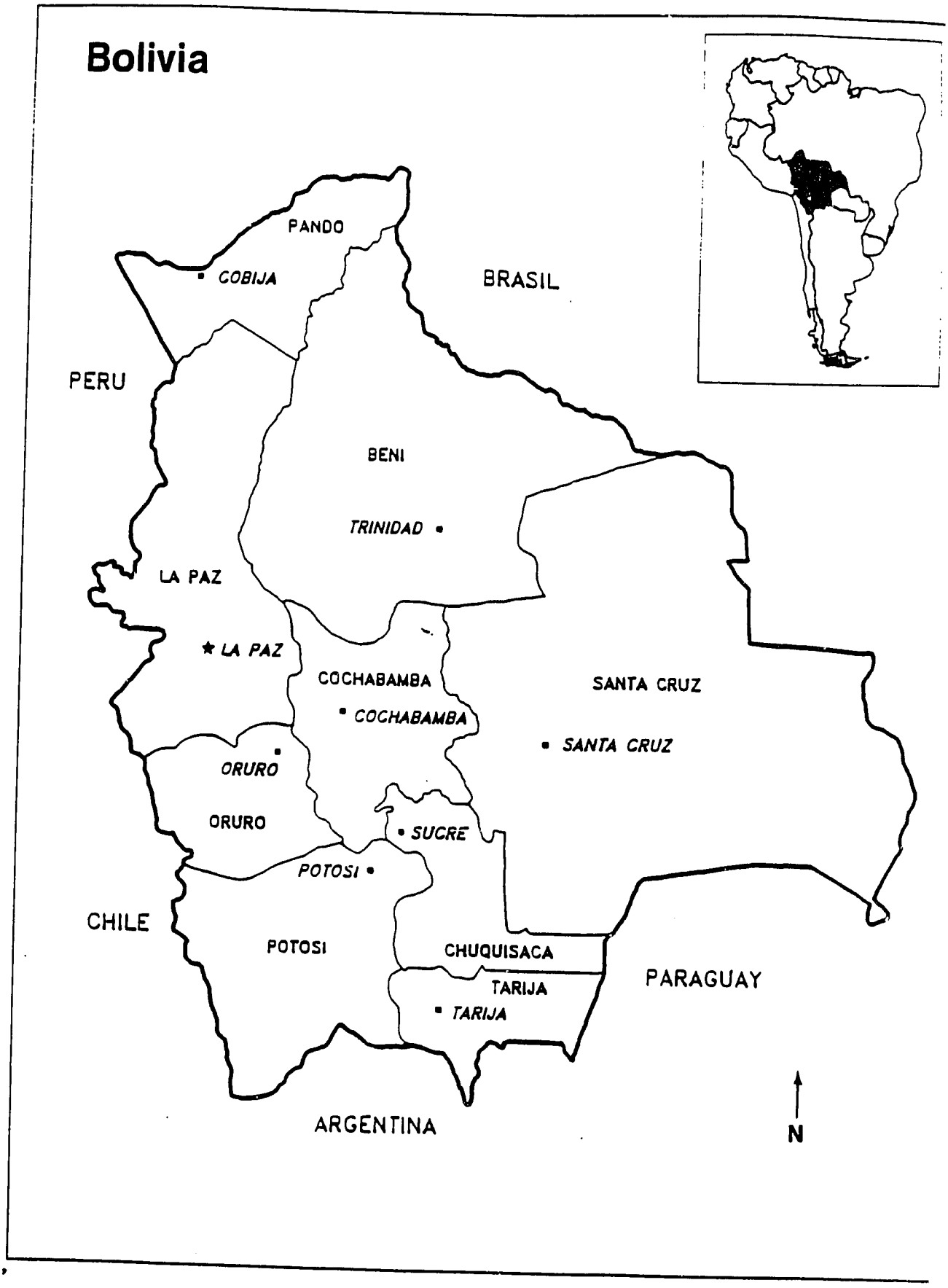
Immediately following this visit by REACH, a NNT specialist from PAHO began the first of several visits to Bolivia to collaborate with the MPSSP in assessing areas at high-risk for NNT and planning control strategies. His recommendations complemented those of REACH and emphasized the need to eliminate NNT first in urban areas of known risk. PAHO visits in late 1988 and early 1990 further analyzed available data on NNT incidence and TT vaccination in the DSC. The PAHO team documented a reduction in NNT incidence in the DSC and throughout Bolivia in the face of improved disease notification systems.

REACH and PAHO have regularly shared their technical reports. USAID and PAHO collaborate with the MPSSP on the Expanded Program on Immunization (EPI) in general, and NNT specifically, through the mechanism of the ICC.

In September 1989, REACH sent to Santa Cruz a consultant who provided an update on the severity of the NNT problem, even in the urban areas of Santa Cruz and Montero where there were abundant health care facilities. There was a very low level of awareness among health care providers regarding the vulnerability of this problem to available preventive measures. Immunization coverage of women of childbearing age was extremely low. Cases of NNT were occurring in babies of women with multiple contacts with the existing health system, but these women were not being immunized unless they met very rigid criteria. These included immunization only during the fifth or seventh month of pregnancy. A seminar was given to the Pediatric Society of Santa Cruz, and recommendations were discussed with the MPSSP, PAHO, USAID, and National Pediatric Association representatives. All agreed on the importance of the problem and the need to take action.

B. Population and Health Status

The population of Bolivia in 1991 is estimated to be more than 7 million (a national census has not been conducted since 1976). As of 1985, some 21% of Bolivia's total population resided in the plains, with the majority in the DSC. The DSC is the second most populated department in Bolivia. The DSC lies in the plains of eastern Bolivia and has a population of approximately 1.1 million persons, of which approximately 600,000 reside in the City of Santa Cruz (see map, next page). The City of Santa Cruz had the highest growth rate (5.3%) of any departmental capital in Bolivia from 1980-1985. Much of the urban growth is due to migration from the valleys and, to a lesser extent, from the highlands.


Bolivia
PANDO
COBIJA
BRASIL
PERU
BENI
TRINIDAD
LA PAZ
LA PAZ
COCHABAMBA
COCHABAMBA
SANTA CRUZ
SANTA CRUZ
ORURO
ORURO
SUCRE
POTOSI
CHILE
POTOSI
CHUQUISACA
TARIJA
TARIJA
PARAGUAY
ARGENTINA
N

A national Demographic and Health Survey conducted in 1989 reported an infant mortality rate of 84 per 1000 live births for the plains of Bolivia. Based on a five-year recall, the survey estimated that NNT was responsible nationwide for 5.7% of all neonatal mortality. In the plains, 41% of mothers reported that they received no prenatal care and 55% received such care from a physician. Fifty three percent of the births during the previous 5 years in the plains were reported to have been conducted by a physician, 15% by a partera (traditional birth attendant), 23% by the parents, and 5% by a nurse. On average, initiation of first union (and hence first isk of NNT) occurs at 18.8 years of age in the plains.

Immunization coverage surveys conducted throughout urban and rural areas of Bolivia showed a dramatic increase in TT2 coverage from 1.6% in 1987 to 51.7% in 1990. The 1990 figures for urban and rural areas, respectively, were 49.8% and 53.4%. The DSC had the lowest TT2 coverage in Bolivia - 42.1% overall (37.5% in urban areas and 46.1% in rural areas). The urban areas of DSC - consisting of the cities of Santa Cruz, Camiri and Montero - had the highest dropout rate from TT1 (62.7%) to TT2 (37.5%) of any of the urban areas in the country. TT2 coverage in the cities of Santa Cruz, Montero and Camiri was, respectively, 37.9%, 27.8% and 37.7%. Within the city of Santa Cruz, six 30-cluster coverage surveys were done and showed a narrow range of 34-41% in TT2 coverage.

The rapid increase in TT2 coverage since 1987 is to the credit of the MPSSP. However, TT2 coverage still lags considerably behind coverage with childhood antigens. For example, DPT 2 was 57% for the DSC (74% for urban areas and 51% for rural areas).

C. Policy Basis for NNT Elimination

In May 1989, the World Health Assembly of the World Health Organization (WHO) adopted a resolution calling for the global elimination of NNT by 1995. The Directing Council of PAHO endorsed this goal at its meeting in September 1989. PAHO has developed and is applying a sound methodology to realize this goal, which consists of identifying areas of high risk for NNT by review of existing routinely collected data and improvement of notification systems. PAHO recommends that all women of childbearing age residing in high-risk areas (areas reporting NNT incidence higher than the national average) should be targeted by means of all available immunization strategies. These would include opportunities at prenatal visits (at any time during pregnancy) or at any other visit of such women to health facilities for whatever reason, house-to-house immunization, at markets, and in conjunction with childhood immunization during national vaccination days (NVD). At the first Andean Meeting on EPI and Eradication of Poliomyelitis in Quito in November 1989, PAHO called for greater support from cooperating agencies to guarantee supplies of vaccine, syringes and needles.

The Technical Advisory Group (TAG) for EPI and the Eradication of Poliomyelitis has given its strong endorsement to the broad goal of NNT elimination. However, at its July 1989 meeting in Colombia, the TAG was silent as regards the number of doses of TT to be administered, while at the March 1990 meeting in Mexico, the TAG stated that each woman of childbearing

age should receive at least two doses of TT. Again in Guatemala, in March 1991, the TAG made no mention of the number of doses of TT required. A clear unequivocal endorsement of the full five-dose schedule of TT has yet to be issued by the TAG, PAHO/Washington or PAHO/La Paz. Such a statement would greatly help in guiding policy formulation at national levels and strengthening implementation at operational levels. WHO/EPI in Geneva considers that 5 properly-spaced doses of TT are required for protection throughout the childbearing years. (Annex 3 provides a useful guide to action which WHO/EPI in Geneva issued in September 1988.) The immunological response to successive doses of TT in relation to duration and level of protection is depicted in Annex 4.

PAHO/Washington technical staff prefer not to take a strong universal stand on the number of recommended TT doses, since, they argue, two or certainly three doses should protect most women and newborns. The REACH team, however, sees major benefits in a strong and consistent five-dose policy both across and within countries.

IV. TRIP ACTIVITIES

In La Paz on March 4 and 5, the REACH team met with USAID's Technical Advisor for Child Survival; the MPSSP Epidemiology and EPI units (which provided data and reports on NNT in Santa Cruz); the PAHO country representative and a medical officer and UNICEF's Medical Advisor and Director of Health and Nutrition.

In Santa Cruz (March 6-14), the REACH team worked closely with the Director of Epidemiology, the Regional EPI Director, and many other staff from the MPSSP' Regional Health Office (Undidad Sanitaria). The team visited the Children's Hospital, a district referral hospital, two district health centers, and two area health centers. The team also met with the Pediatric Society and some local pharmacists. In Montero, the team met with staff of the Children's Hospital, General Hospital, and an NGO's community project that served a high-risk area where recent migrants from the valleys and highlands lived.

Back in La Paz (March 15 and 18), the team debriefed with USAID, the Director of the USAID-funded Community and Child Health Project, the Director General of Public Health, and the Director of Epidemiology.

The methodology used consisted in reviewing available epidemiological data, identifying the strategies being used in Santa Cruz and Montero urban areas, and visiting local health services, community projects and other places where immunization of women of childbearing age was taking place.

The focus was on what could be done to achieve NNT elimination in the short-term, and to sustain it in the long-term, in the urban settings of Santa Cruz and Montero. Attention was given also to the need for elimination of NNT in rural settings of Santa Cruz and other departments. It was decided, however, that it was of critical importance to ensure that the right urban strategies were in place, with the needed logistical and training support, since urban elimination was a much more practical short-term goal. Also, the experience gained in urban areas would be instrumental to guide rural NNT control.

V. RESULTS/CONCLUSIONS

A. Current Situation

Information on NNT in the DSC varies greatly in both qualitative and quantitative aspects. In vast rural areas, NNT cases go all but totally undetected. In urban areas, cases are easier to detect, yet under-reporting is still an important problem. It must be pointed out, however, that the Regional EPI Director has done a very good job in reviewing hospital records, and has even identified cases from parteras (TBAs) through use of local terms and verbal autopsies. Four urban cases and 17 rural cases were identified by TBAs.

Urban cases in Santa Cruz for 1988, 1989 and 1990 have been plotted on maps of the city, showing clear clustering of cases in certain areas of the city. It is interesting to note that in 1988 and 1989, there were still cases of NNT inside the so-called third ring of the city. In 1990, all cases were outside of the third ring (see Annex 5). A provisional listing of cases for 1990 in the DSC was collected (Annex 6).

The REACH team arrived in Santa Cruz to find that the Unidad Sanitaria and other local groups, with support from the MPSSP and PAHO, had taken many positive steps since the problematic situation encountered on the previous REACH consultancy in August 1989 (Annex 2). Many more opportunities were being taken to immunize women in hospitals and health centers. An immunization team had been making house-to-house sweeps through the high-risk slums. The Children's Hospital had instituted periodic immunization in markets. Forty TBAs had been trained and were contributing to both immunization and surveillance.

Local officials welcomed REACH collaboration in developing a systematic plan for eliminating NNT in the Department, focusing on urban areas in the first two years. The plan seeks to both reinforce many positive steps that are already being taken and to introduce much-needed training, communications support, and innovative service delivery to supplement current efforts.

B. Plan to Eliminate NNT as a Public Health Problem

NNT elimination in Santa Cruz, Montero, and Camiri urban areas is quite feasible within two or three years. Yet, for this to happen, a combination of strategies must be in place and be reinforced in terms of political resolve, logistics, training and social communication. Due to competing pressure on limited human and financial resources, there may be a temptation to reduce NNT elimination activities once the more apparent cases in urban areas decline. Universal Td immunization must be stressed in rural areas, as well.

The REACH team worked with the Unidad Sanitaria staff to produce a detailed plan for the elimination of NNT for 1991-1995 (Annex 7). The plan deserves support from the collaborating agencies. Targets are set for urban areas including the cities of Santa Cruz, Montero and Camiri and should be elaborated in 1992 for rural areas. By 1993, 80% of babies should be born protected against NNT and, assuming that the great majority of high-risk women

will be among those protected, NNT should be eliminated, or at least significantly curtailed. It is hoped that this detailed plan can become a model for NNT elimination efforts in other areas of high risk in Bolivia.

The first basic strategy is to strengthen epidemiologic surveillance, including routine notification, active search, and case investigation. The regional epidemiologist is attempting to improve the completeness of weekly reporting from health facilities, which he estimates to be 90% in urban areas and 70% in rural areas. Improved reporting will help expand known risk areas and provide confidence that reported low incidence is not a function of incomplete reporting. Since every case of NNT represents potential failures of the health system to attend to the needs of women, each case will be investigated to determine how to improve control. The team proposed a revised case investigation form which can be used (Annex 8).

Detailed information on each case, including the factors which determine the non-immunized status of the mother, is of critical importance for the current phase of NNT elimination, especially in urban areas. Epidemiological surveillance is not an academic exercise, nor an effort to satisfy one's curiosity. At present, most cases are diagnosed in referral hospitals, but district and area health teams are unaware of those cases which originated in their areas. As serious efforts are being taken to reduce significantly the susceptible population, the completeness of immunization coverage and the degree of detail of surveillance data becomes much more important. Therefore, every possible effort should be made to have good quality surveillance in Santa Cruz, Montero and their surroundings.

One new approach which will be tried is to involve all physicians throughout the public and private sectors in serving as surveillance agents for NNT, as well as for other target EPI diseases. This will be achieved partly through an annual direct mailing to all physicians that includes a stamped postcard for return mailing. The systematic use of TBAs for case notification, particularly in rural areas, will need to be supported.

The postcard will provide a standard definition of NNT (and other diseases) and enquire whether and where the physician has seen any case during the past 12 months. The card can ask a few questions of management importance, such as the knowledge of norms or where/when immunization is available. To encourage physicians to return the completed postcards, it is proposed that the Unidad Sanitaria draw five postcards randomly to award free yearly subscriptions of the Bulletin of the Pan American Health Organization.

The Unidad Sanitaria should also consider innovative rural surveillance as instituted at PAHO's suggestion in El Salvador. All persons attending a health facility could be asked if they are aware of any possible doses of tetanus. Such a scheme could greatly aid in filling in the mostly blank spaces in rural areas on the tetanus map of the DSC.

The second basic strategy to achieve and sustain NNT elimination is the strengthening of immunization services to take advantage of every possible

opportunity to immunize women as well as children, and to initiate new modes of service delivery.

It is hoped to avoid missed opportunities during current contacts with women by:

- Providing TT as soon as possible during pregnancy, not only during certain pre-established periods of pregnancy.
- Having all major health facilities actively screen and immunize all women of childbearing age who come to these institutions for any reason.
- Offering immunization services at all health care facilities every day during all working hours and opening a vial for even a single woman.
- Emphasizing the immunization of women of childbearing age during the national vaccination days.

The plan also entails continuing or initiating innovative ways to reach target groups:

- Providing immunizations on a house-to-house basis in peripheral areas of the city, in which the majority of known cases occur.
- Administering peri-focal immunization whenever a case of NNT is detected.
- Immunizing eligible women at markets.
- Immunizing schoolchildren in all grades of public schools followed by a maintenance strategy focusing on the early grades of primary schools.
- In rural areas, training of TBAs in TT immunization and systematic case detection, with requisite logistical support, vaccines and syringes.

The remarkable success of the Unidad Sanitaria in **reducing missed opportunities** for immunization by initiating active screening and immunization at the entrance of 5 hospitals and one private clinic in the City of Santa Cruz needs to be replicated elsewhere. In those six sites during a five-month period in 1990 (January to May) prior to the implementation of the strategy, 3,500 doses of TT were given compared to 41,700 in the seven months following implementation. TT is offered on a daily basis in practically all urban public health facilities to women who cannot demonstrate previous immunization.

The Unidad Sanitaria proposes to re-assemble teams of outreach workers (brigadas) in Santa Cruz City to **immunize door to door in peripheral neighborhoods.** This activity was stopped in October 1990 due to strikes. As

this activity is relatively expensive, the desired average number of TT doses given per person per day needs to be established in advance and closely monitored.

A new approach which is being proposed is the **intense immunization around notified cases** in urban areas (immunizing unprotected women in the 50 houses closest to the case) beginning in 1991 and in rural areas in 1993. Although NNT is not transmitted from person to person as are viral diseases, the focal nature of NNT incidence has been observed. This strategy will not only produce an impact on the tetanus problem, but also will give much more meaning to surveillance activities, which in turn will enhance the capacity of the surveillance system to detect a greater proportion of the NNT cases. Another advantage of this strategy is that it is similar, logistically and operationally, to the ongoing acute flaccid paralysis surveillance program. This makes implementation much easier for the health teams.

A coverage survey in each district reporting NNT cases in the preceding 12 months in the 3 urban areas will be conducted late in 1991, as a follow up to the surveys conducted in February 1990. In the intervening one and a half years, coverage will have greatly improved. Survey results will be reported not only by the proportion of women protected (as exclusively done in 1990), but also by the epidemiologically more significant proportion of babies born protected against NNT through maternal immunization. Low performing urban districts will be identified and corrective measures taken.

Routine services statistics cannot validly be used to gauge the proportion of women protected with TT or births protected against NNT. Unlike the case of infants, a cohort which renews itself annually and is consequently easily calculated, multiple doses of TT are administered with varying intervals over a 30-year reproductive span; and women enter and leave the eligible age range all the time. "Coverage" in a given year does not equal "protection," because it overlooks immunizations given in past years which are still protective.

The coverage surveys will rely on both documented coverage by cards and maternal recall. The accuracy of this recall, as well as the true "gold standard" level of protection, will be serologically determined by bleeding women on filter paper. Technical assistance from REACH in the training and implementation of the coverage surveys, and computerized analysis using COSAS (Coverage Survey Analysis System), can be provided by REACH.

The Unidad Sanitaria is interested in expanding a scheme, begun experimentally in 1990, of **using TBAs to immunize women, notify cases of NNT, and improve obstetrical practices.** (This joint MCH/EPI initiative is supported by PAHO.) While the scheme was judged an overall success, an evaluation report indicated that parteras' level of knowledge was relatively weak as regards the length of time the TT vial could be kept outside the cold chain without being opened, belief that disposable syringes and needles could be boiled, and understanding concerning application of TT at any time during pregnancy.

The TAG which met in March 1991 in Guatemala recommended that "new simple injection technologies should be applied to TT vaccination that could be easily used by lay personnel and introduced for routine use in national

programs." The Unidad Sanitaria expressed interest in the availability of a single-use syringe with a non-detachable needle which is pre-filled with a single dose of TT for field use by TBAs (see Annex 9). Developed by a REACH subcontractor PATH (Program for Appropriate Technology in Health), the syringe was successfully tested in Guatemala by a MPSSP, PAHO, Johns Hopkins University team in 1986. The syringe has been designed for exactly the sort of conditions found in Santa Cruz, where parteras use TT outside the cold chain. The risks of contaminated multi-dose vials and inaccurate doses can thereby be avoided.

Enrollment of schoolchildren in the DSC is extremely high in the early grades, and the number of males and females is nearly the same in primary levels (ages 6-12). In the public schools in Santa Cruz City, there is a 12% "drop out" rate from first to second grades and an additional 5% dropout in each subsequent year. However, it is possible that the declining figures in each subsequent year of primary schools do not represent a dropout as much as a decreased cohort due to slower rates of urban growth in the past.

The Unidad Sanitaria proposes to initiate a long-term strategy to achieve and sustain NNT elimination by seizing the opportunity to immunize the captive population of schoolchildren in public schools. Coordination at the highest levels within the DSC and the education authorities will be needed to launch this approach. Not to immunize these children would represent a serious missed opportunity, since they will be the parents of the future. Immunizing them now takes advantage of the long-term duration of protection provided by successive doses of tetanus toxoid and reduces the number of doses of Td which will be needed during childbearing years.

The Unidad Sanitaria will concentrate on the cities of Santa Cruz, Montero and Camiri in 1991 and in remaining areas in 1992. The school immunization will be conducted in urban areas by teachers which the Unidad Sanitaria is training for this purpose. These teachers are a resource to be used on future national immunization days. In rural areas, school immunization will be the responsibility of the respective health services.

The target group in the first year of operations in any given area will be all schoolchildren in primary, intermediate, and middle public schools with two doses of Td spaced at a minimum interval of 6 months. A dose of OPV can be given to primary schoolchildren, as well. In the second and subsequent years of operation, schoolchildren in grades 1, 2, and 3 will receive a single dose of Td each year. It is essential to reach the youngest schoolgirls before the customary attrition begins. If already primed with 2 doses of DPT during infancy, these 3 doses of Td will confer protection which will last throughout the childbearing years. A single dose of OPV and measles may be given in the first grade of primary school. The immunization schemes are presented in Annexes 10-11. Both female and male schoolchildren (assuming supplies are sufficient) will be immunized.

The ideal is that females should enter the reproductive ages already fully protected with 5 doses of tetanus toxoid (which will provide immunity throughout their childbearing years), or at least 3 doses which will provide long-term immunity and prime the immune system such that fewer additional doses are required. The establishment of a system for routine immunization of

future cohorts of school enterers is a practicable, sound investment in durable and sustained TT protection. The short-term goal of NNT elimination by 1995 should not distract EPI managers from the technically sound mid-term approach of immunizing schoolchildren in the earliest grades. However, EPI staff will need to ensure that a school focus does not distract health workers from their primary task: fully immunizing infants before 12 months of age and unprotected women of childbearing age.

A pilot project is proposed to utilize a few pharmacies as immunization points in underserved neighborhoods. Criteria for their selection and mutual responsibilities will need to be carefully established.

Although not presently being considered by the Unidad Sanitaria, the team feels that special efforts should be directed to immunize areas of high in-migration, including seasonal migrants from the valleys and high plateau who come to work in the cotton and sugar fields.

General policy issues raised by the plan which need to be reviewed by the MPSSP with input from the ICC include:

- an unequivocal statement regarding the number of doses (five) needed
- use of Td[1] rather than TT in order to protect against diphtheria at the same time
- definition of target group of women of childbearing age (e.g., 13-44 years is recommended rather than 15-45).

All the vaccination strategies depend on the existence of a card to assist health staff to appropriately screen and record TT. The currently used women's immunization card, as well as national EPI posters and other materials, need revision to be clear to the public and health workers. This is discussed in the following section.

The proposed budget to support the intensified NNT strategies is detailed in Annex 12 and summarized by year and category in Annex 13. Approximately $33,000 in incremental funds (not including cards, vaccine and syringes/needles) will need to be spent in local currency to support the proposed activities. Unidad Sanitaria personnel are concerned about possible failures of re-supply from La Paz. They pointed to the fact that the DSC has

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[1] Td is sometimes called "adult DT" and should not be confused with "pediatric DT." The only indication for "pediatric DT" is in children under 6 years old when a documented adverse reaction to DPT has occurred before tetanus and diphtheria protection is complete. Pediatric DT as compared to Td has the same amount of tetanus toxoid, but a much greater amount of diphtheria toxoid. The greater amount of diphtheria toxoid of pediatric DT makes it inappropriate for use in adults, for whom it is associated with adverse reactions. On the other hand, both TT and Td have the same rate of adverse reactions, which is extremely low in both cases. Td can safely be used for schoolchildren and adults.

been completely out of stock of TT for 2 months and is still awaiting re-supply from La Paz. (The EPI office in La Paz subsequently denied that this was the case.) In addition, some cold chain equipment, on order since last year, is still awaited.

The incremental requirements for vaccine for the proposed school project is calculated in Annex 14 and summarized by year of implementation in Annex 15. The incremental requirement for Td in 1991 and 1992 is 297,000 and 210,000 doses, respectively. In 1993 and subsequent years, some 83,000 doses of Td would be required for the maintenance strategy. Incremental requirements of disposable syringes/needles in 1991 and 1992 are 270,000 and 195,000, respectively. By 1993 and following years, the requirement is 96,000.

The additional vaccine, cards, syringes and needles, and health education materials will need to be provided by donors. The cost of cards, syringes/needles and vaccines for the proposed school program is estimated at $28,000 in the first year, $23,000 in the second year, and $13,000 in the third and each following year of "maintenance" (Annex 15). Funds from La Paz to support training and other activities already elaborated in the 1990 and 1991 plans will be needed. (If funds are limited, or the ICC recommends other priorities, the school program could begin with the "maintenance" strategy in 1991, although more intensive strategies for 1991 and 1992 are clearly preferable.)

Indicators to verify progress are included in the plan. A few comments are in order. The rate of NNT will be measured per 1000 live births and not per 100,000 of the general population, as has been occasionally reported in the past. The proportion of neonatal hospital admissions due to NNT will also be monitored at health facility and higher levels. This indicator is especially useful where catchment populations are not known or change over time (as in Santa Cruz City with high in-migration and the establishment of a new referral hospital several years ago). The dropout from TT1 to TT2, and eventually from TT1 to TT3, will be monitored at health facilities and higher levels.

It is recommended that the annual proportion of total tetanus due to NNT be monitored at the departmental level. This should be done retrospectively as well, since data by age of tetanus cases already exist for several years. A successful immunization strategy against NNT should see a reduction in total tetanus and an epidemiological shift to older ages. In addition, the proportion of females among total adult tetanus (older than 14 years of age) should also diminish over time, since females are the principle target for immunization.

C. Communication/Training Support for Actions to Eliminate NNT

In discussions with many levels of health care providers, the REACH team found a high level of awareness of the NNT problem and a high priority given to immunization of women of childbearing age. Most facilities were doing a good job of screening women for their TT status.

On the other hand, the REACH team encountered almost universal confusion among providers regarding current national (and international) norms regarding

TT schedules for affording protection to women of childbearing age and their offspring. Almost every health worker, when asked about appropriate intervals for the five-dose schedule, either had no idea or said something like five doses with two months between each dose. There remains uncertainty about immunizing pregnant women only in the fifth or seventh months (old policies that officially ended several years ago) and about a danger in substituting Td for TT. Even the person in charge of the local training program for auxiliary nurses expressed concern about the adverse consequences of inadvertent administration of more than two doses of TT or accidental immunization of women who were unaware that they were pregnant. It is likely that this confusion is being translated into many missed opportunities to give appropriate doses.

This situation clearly indicates a need for better training and supervision -- a process that has already begun with PAHO support. Annex 16 presents a grid of the extensive training proposed to support the NNT elimination plan.

The present confusion is a consequence of a great deal of incorrect, imprecise and conflicting information coming from the national level in the form of manuals, posters, and even the national women's immunization card. The REACH team encountered different EPI manuals available in various health facilities; all contained outdated norms and some stipulated the need for only two doses of TT. Annex 17 presents a number of examples (technical norms manual, posters, card, private advertisement, etc.) of incorrect or imprecise information and suggests how the materials might be revised.

To help combat this problem on the DSC level, the REACH team designed two posters that contain many important reminders to health providers. The chart on the following page shows the key role that the posters should play in reminding health personnel and women about important information regarding TT. One poster is called the "Rights of Santa Cruz Families Concerning Immunization." It encourages parents to bring the vaccination card on every visit to a health facility. It reminds health workers to:

- always check the immunization cards of women and children and give them any immunizations for which they are eligible
- explain to parents that it is safe to immunize someone who is sick, what diseases today's shots will help protect against, that mild side effects are normal and easy to treat
- fill out the immunization card and explain when to return
- and answer questions and thank the parents.

The second poster explains the five-dose schedule, the minimal intervals, and the duration of protection, as well as clarifying confusion concerning when to immunize pregnant women and the use of either Td (TT plus diphtheria toxoid) or TT (tetanus toxoid). The Unidad Sanitaria expects to be able to find local private sector funding for these two posters, which would be placed in all public and private health facilities, as well as community centers, etc. The current drafts need to be further reviewed for language and technical content and pretested before being printed and distributed. It would be desirable for supervisors to do the distribution so that they can answer any questions which local health staff might have concerning the posters' content.

Plan to Eliminate NNT from the Department of Santa Cruz: Summary of Communication Component

Service Delivery Strategy	Principal Audience	Media	Main Messages
Strengthen immunization in hospitals and private clinics	Health staff	*Posters on "rights of Santa Cruz families" and "TT/Td" *Training	*Take advantage of all opportunities to immunize *Know and implement norms *Appreciate key role in educating and motivating women of childbearing age
Strengthen immunization in governmental health facilities	WCBA	*Posters *Radio spots *Counseling by health workers	*Messages that inform when and where, that motivate, and that overcome resistances *Always bring cards
	Health staff	*Posters	*Same as above
National vaccination days	WCBA	*Posters *Radio, tv *Community groups	*Promote days as time for all women 13-45 to be immunized *Information on when and where *Bring cards
Immunization sweeps ("barridos") of periurban neighborhoods	WCBA	*Posters *Radio *Loud speakers	*Messages that inform when and where, that motivate, and that overcome resistances
Perifocal immunization around cases	WCBA	*Posters *Loud speakers *Community groups	*Messages to motivate (with emphasis on immediate risk) and to overcome resistances
Immunization in schools	Students	Talks and discussions the day before each immunization day	*Explain importance *Bring cards
Immunization in markets	WCBA	*Posters *Radio *Loud speakers	*Messages to inform, motivate, and overcome resistances
Immunization in selected pharmacies	WCBA	*Posters	*Messages to inform, motivate, and overcome resistances

WCBA=Women of childbearing age

The 30-cluster surveys in the DSC in 1990 found that in nearly 30% of the cases of incomplete or non-vaccination, religious objections were cited. Indeed, the chief medical advisor to the Catholic Church in Bolivia has been publicly denouncing TT as a covert plot to promote family planning. He cites an article by J. Spieler on "Desarrollo de métodos inmunológicos para regular la fecundidad," which appeared in the Bulletin of the Pan American Health Organization (Volume 104, no.4, April 1988). This article refers (p. 323) to research on a human chorionic gonadotrophin vaccine using TT as a protein vehicle. The team feels that a rigorous overture by PAHO to the concerned church officials should be made to dispel these concerns.

D. Technical Assistance Required

The Unidad Sanitaria has many highly competent (although overburdened) individuals who are capable of implementing most of the proposed activities without receiving technical assistance. However, the REACH team and Unidad Sanitaria staff have identified three technical areas for which outside technical assistance is either highly desirable or essential. These areas are training, coverage surveys, and communication.

Because PAHO is already providing funding support for training and because it has highly capable Bolivia-based or Washington-based staff, it is suggested that PAHO provide technical assistance in this area. It is suggested that REACH assist in the other two technical areas through a buy-in from USAID/La Paz to cover these person/months of time.

REACH staff and consultants have much experience in the organization and analysis of coverage surveys. REACH has refined WHO's Coverage Survey Analysis System (COSAS) to provide automatically many useful managerial indicators. In a five-week consultancy, a REACH staff or consultant could finalize planning for 30-cluster coverage surveys in urban districts of Santa Cruz City, Montero, and Camiri; help train the interviewers and oversee practice interviews; teach Unidad Sanitaria staff how to utilize COSAS to analyze the surveys, and help prepare the final report. Up to $1000 will also be needed to permit serological analysis for each survey.

In a four-week consultancy, a REACH staff or consultant could assist with the final pretest and design of two project posters (drafts are in Annex 18); work with the health educator and other Unidad Sanitaria staff to plan and carry out focus group discussions to provide the basis for designing radio spots and other messages, and help with the initial analysis of the research (see Annex 19).

On a second (three-week long) assignment approximately four to six weeks later, the REACH staff or consultant could review and oversee pretests of the draft messages and radio spots, help finalize the spots and broadcast arrangements, and work out a communication monitoring plan with the Unidad Sanitaria staff.

VI. RECOMMENDATIONS

On the basis of its observations and discussions in Bolivia, the REACH team recommends:

- that the ICC monitor the progress of the NNT elimination plan in DSC and consider implementing similar plans in other high-risk areas of Bolivia;

- that the ICC seriously consider the revisions recommended by the REACH team in national EPI manuals, posters, and the women's immunization card;

- that the MPSSP and ICC review a number of important policy issues raised by the plan, including:

  - the need for an unequivocal statement regarding the number of doses (five) needed;

  - use of Td (not to be confused with pediatric DT, which in adults is associated with adverse reactions) rather than TT in order to provide safe protection against diphtheria along with tetanus;

  - the definition of the target group of women of childbearing age (i.e., 13-44 years is recommended rather than 15-45);

- that PAHO and the MPSSP make a vigorous overture to church officials to dispel concern over a connection between tetanus immunization and sterilization;

- that the Unidad Sanitaria, the MPSSP, and PAHO explore the introduction of a pre-filled single-use syringe with a non-detachable needle for use by TBAs;

- that the Unidad Sanitaria plan and implement feasible strategies to reach the large number of women among seasonal migrants;

- that Unidad Sanitaria officials establish logical and objective criteria for the selection of pilot pharmacies to participate in the experimental effort to establish immunization posts in private pharmacies (in order to minimize feelings of jealousy or favoritism);

- that the Unidad Sanitaria experiment with innovative indicators to track its progress in NNT elimination, e.g.: the proportion of neonatal hospital admissions due to NNT, the dropout from TT1 to TT2 and from TT1 to TT3, the annual proportion of total tetanus cases due to NNT, and the proportion of female tetanus among total adult tetanus cases.

PAHO/Washington suggests, and REACH concurs, that the ICC/USAID consider funding a surveillance situational analysis in other areas of Bolivia of presumed high tetanus risk but low reporting. This is a critical step in expanding control efforts beyond DSC to other needy areas of Bolivia.

VII. FOLLOW-UP ACTIONS

To follow up its assignment in Bolivia, the REACH team recommends the following actions:

- that the REACH team complete its trip report in English and Spanish by May 15 and send copies by express mail to USAID, PAHO, UNICEF, the MPSSP, and the Unidad Sanitaria;

- that USAID (specifically, Technical Advisor for Child Survival Joel Kuritsky and Health Officer Charles Llewellyn) and representatives of the Santa Cruz Unidad Sanitaria (Drs. Gil and Villarroel) present the NNT elimination plan to the Inter-Agency Coordination Committee and request the ICC's recommendations for modifications and/or approval;

- that Dr. Kuritsky work with USAID and the other EPI partners in Bolivia to identify funding for local costs and for recommended technical assistance;

- that REACH, USAID, and the ICC keep Unidad Sanitaria officials informed regarding the status of approval and funding for their NNT elimination plan.

ANNEX 1

PERSONS MET

USAID

Dr. Joel Kuritsky, Technical Advisor for Child Survival
Mr. Charles Llewellyn, Health Officer
Dr. Alvaro Muñoz Reyes, Executive Director, Community and Child Health Project

Ministry of Health

Dr. Roberto Vargas, Director, Epidemiology Division
Dr. Percy Halkyer, National Advisor, EPI
Dr. Jack Antelo, Director General
Dr. Rosario Quiroga, Medical Officer, EPI

Pan American Health Organization

Dr. German Perdomo, Country Representative
Dr. Mauricio Landaverde, EPI Advisor

UNICEF

Dr. Jorge Mariscal, Medical Advisor
Dr. Guido Cornale, Director, Health and Nutrition Programs

Regional Health Office (Unidad Sanitaria), Santa Cruz

Dr. Fernando Gil, Director, Epidemiology Division
Dr. German Villarroel, PAHO Advisor, EPI
Dr. Robert Torres, Director, Urban Services
Dr. Hugo Foianini, Regional MCH Director
Dr. German Dominguez, Director, District II
Dr. Michel Bossuyt, Advisor, Belgium Assistance
Lic. Juan Carlos Dávalos, Health Educator

Other Health Personnel, Santa Cruz

Dr. Dolly Montaño and other staff, Children's Hospital
Lic. Juana Cuellar, Director, Auxiliary Nurse Training, Nursing School
Pediatric Society members
Staff of five urban and periurban health facilities

Health Personnel, Montero

Dr. Dardo Chavez, Unidad Sanitaria, and Director of Villa Cochabamba Community Health Project
Dr. Roger Nuñez, Children's Hospital
Dr. Julia Vaca, General Hospital
Other health staff in hospitals and community health centers

ANNEX 2

SUMMARY OF REACH WORK ON NNT IN BOLIVIA

A detailed epidemiological assessment of Bolivia was conducted by a four-person REACH team in October and November of 1987. This assessment, entitled "Child Survival in Bolivia: Current Status and Priorities for Action," was completed to guide planning for a new bilateral Community and Child Health Project which was to have a strong EPI component.

The team noted that 80% of births are attended at home by untrained attendants - one of the highest rates in South America. NNT incidence is high because of traditional cord care practices and low vaccination coverage with TT. Whereas the incidence of most vaccine-preventable diseases has decreased, NNT incidence was presumed to be unchanged. Cause-of-death data in the civil registry are aggregated and do not permit a breakdown of "certain infections originating during the prenatal period." Fortunately, a 1982-1983 study by Toro et al. (1984) of the causes of death in children 0-35 months of age, according to civil registries in urban areas with more than 6,000 inhabitants, disaggregates NNT. It represents 10.5% of deaths due to "certain perinatal disorders." In hospitals, 18.2% of deaths due to "certain perinatal disorders" are caused by tetanus. NNT was responsible for 49% of "certain perinatal infections" in the plains, 9% in the valleys, and 0% in the high plateaus according to civil registries. The authors note that, given under-reporting, the true incidence of NNT is much greater.

Noting the very low coverage with TT (3% with two doses) among urban mothers of children 12-23 months of age, as recorded in 11 immunization coverage surveys (which a REACH staff member had suggested on an earlier visit), the authors of the epidemiological assessment recommended that child survival strategy should offer TT to pregnant women receiving prenatal care and to mothers bringing their children for immunization. They also recommended that mass campaigns be conducted among women 15-35 years of age residing in the plains and valley regions.

A REACH staff member and consultant participated in the national Inter-Agency Coordinating Committee's (ICC) annual review of EPI plans in February 1988. They also recommended that the MPSSP:

- Change the present national policy limiting TT to women in their fifth and seventh months of pregnancy. Td should be given at the first contact to any eligible woman 15-45 years of age, regardless of month of pregnancy, as this vaccine is safe and efficacious.

- Offer Td (or DT for adult use) to all females of childbearing age in the high-risk ecological zones (tropics, subtropics, and possibly valleys) during existing mass campaigns directed toward children.

- Develop and use a Td card for women.

The MPSSP agreed to the recommendation to include Td vaccination for all women of childbearing age during the three annual mass campaigns, particularly in the ecological zones of highest incidence.

This recommendation to include TT during national vaccination days had been proposed in April, 1987, for Latin America by PAHO's EPI Technical Advisory

Group on Eradication of Poliomyelitis in the Americas. TT is now offered by the MPSSP in Bolivia, as elsewhere, during national vaccination days.

Periodic visits by REACH staff permitted a dialogue on policy concerning NNT control. In August 1988, a REACH staff member encouraged the MPSSP to:

- o explore operational implications before adopting the WHO-recommended five-dose TT schedule, including revision of the TT card to reflect the five-dose schedule. How to ensure the required minimum intervals during the four-month mobilization cycles would need to be determined.

- o update its policies which inappropriately stated that TT is suitable only during the fifth and seventh 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 possibly during pregnancy.

In August 1988, REACH provided a three-person team to conduct a medico-anthropological study of the cultural perceptions of NNT and programming implications in three cultural and topographical areas. The study was probably the first of its kind devoted to NNT and will serve as a model for future work elsewhere. It led to the following 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 (high plateau), but should initially target ecological areas of known high incidence.

2. The MPSSP is encouraged to tailor health education messages concerning NNT 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 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 NNT. The MPSSP needs to concentrate its efforts on TT vaccinations to reduce NNT in the short run.

Having identified cultural obstacles to TT immunization acceptability, the findings can be used to develop social communication strategies, design appropriate social communication strategies, design appropriate health messages, and refine delivery approaches. The study includes detailed information on how the peasants perceive tetanus and TT vaccinations and suggests ways that native concepts can be used to educate and motivate them to participate in these programs. It suggests how health educators can create demand for TT by exploiting areas of convergence between traditional and modern beliefs.

Despite the promise provided by this study, the results and methods were greeted with skepticism by the medical establishment, including PAHO and the MPSSP. The survey was an attempt to gain deeper insights into the understanding of the people interviewed in selected communities. Qualitative social science methods unfamiliar to practitioners of the hard sciences were used in the study. There had been no attempt to derive a representative sample. The effort had been taken to establish trust and rapport with the respondents.

The Director of Epidemiology agreed that in the future health education messages concerning NNT prevention will need to have a regional and culture-specific focus to account for the varied understanding of the disease. However, no one specifically assumed responsibility for translating the findings into an action plan for implementation.

In August 1989, a REACH consultant epidemiologist reviewed the magnitude of the NNT problem and status of control efforts in Bolivia and presented to the Bolivian Pediatric Society an overview of recent global advances in NNT control policies and strategies. He also provided guidance on the establishment of a comprehensive control program in Bolivia. The epidemiologist concentrated his field work in Santa Cruz, the department which had reported 88% of all NNT in the country during the first half of 1989. At a NNT control held in La Paz with representation from the MPSSP and supporting agencies of the ICC, the participants arrived at the following conclusions and recommendations:

1. Enhance the surveillance system: strengthen supervision of institutions presently reporting, identify those which are not, and start requiring reports (including zero cases) of NNT from all health institutions.

2. Measure TT vaccination coverage using vaccination records or field surveys if necessary.

3. Study missed opportunities for TT vaccination, particularly in the known high-risk areas.

4. Give training and orientation to health personnel about recent advances in NNT control. Stress the importance of avoiding missed opportunities of TT vaccination for women of childbearing age.

5. Improve communication about NNT control activities within the health sector and to the general public.

6. Coordinate with medical and nursing associations to get their support for promotion of NNT control.

7. Communicate NNT control messages through the mass media to the public as permanent health promotion activities throughout the year.

8. Strengthen regular EPI activities throughout the year.

9. Develop mechanisms to increase the rate of attendance for follow-up doses of TT according to the WHO schedule.

10. Establish a systematic view of vaccination status whenever a woman of childbearing age, with or without her child, comes for health care for any reason.

ANNEX 3

ACTIONS NEEDED TO CONTROL NEONATAL TETANUS

Immunize all women of childbearing age including pregnant women:

- o Previously unimmunized pregnant women should receive at least two doses with an interval of at least four weeks, the second dose at least two weeks before delivery.
- o Give up to five doses of tetanus toxoid (TT) to provide lifelong immunity.
- o Open a vial of TT even if only one woman is to be immunized.
- o Provide an immunization card for each immunized woman.

Immunize at the following sites:

- o At child immunization clinics 74% of the infants of the Region are receiving three doses of polio vaccine. Mothers of these children should be receiving at lease two doses of TT.
- o At antenatal clinics. Give TT at the first antenatal visit. Many staff still do not know that TT can be given safely even in the first months of pregnancy.
- o At family planning clinics.

Immunize women in contact with health facilities for any reason:

- o Women in high-risk groups often use curative services more than preventive services. Screen all women attending curative services for TT status and immunize when needed.

Provide TT immunization as part of mass campaigns:

- o During mass immunization campaigns, at least those mothers who bring their children should be immunized.

Carry out missed opportunity surveys:

- o In curative care facilities and immunization clinics to find out when and where opportunities to immunize women are missed.
- o During a supervisor's visit to clinics.
- o As part of program evaluation.

Monitor what is happening:

- o Record each dose of TT given on the woman's home-based immunization record card.
- o Make neonatal tetanus (NNT) a reportable disease throughout the health services.
- o Report TT immunization administered by target populating and by dose.
- o Assess the status of NNT at all administrative levels every 6 months (province, district and health center), by reviewing data on reported cases, results of case investigations, results of missed opportunity surveys, and, reported TT coverage.

Investigate each case of NNT notified:

- o Determine where and why the case was not prevented, and implement actions which will prevent the occurrence of similar cases. Regions within countries often vary as to what are the key reasons for cases occurring. Identifying these reasons enables managers to plan effective interventions at national and local levels.

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Inform key people:

- Tell parents, teachers, schoolchildren, politicians, religious leaders, popular figures, community leaders and non-governmental organizations how successful TT can be in preventing NNT.

Alert Staff:

- Discuss with all types of medical staff the importance of the program and identify how each can contribute to it.
- Include information on NNT and TT in health education material.

Source: Based on EPI-WHO, Update September 1988, as reported in El Boletín Informativo del PAI, Año X, No. 5, OPS, Washington. October 1998.

ACTIVIDADES NECESARIAS PARA CONTROLAR EL TÉTANOS NEONATAL

Inmunizar a todas las mujeres en edad fértil, incluso las embarazadas:

- Administrar hasta cinco dosis de toxoide tetánico (TT) para conferir protección durante la edad fértil.
- Abrir un frasco de TT aunque se esté por vacunar a una sola mujer.
- Llenar una tarjeta de inmunización para cada mujer vacunada.

Vacunar en los siguientes lugares:

- Vacunatorios infantiles. El 74% de los niños de la Región de las Américas reciben tres dosis de OPV antes de cumplir el primer año de vida. Las madres de estos niños deben recibir por lo menos dos dosis de TT.
- Clínicas para el control del embarazo. Administrar TT durante el primer control prenatal. Muchos miembros del personal de salud no saben que el TT es inocuo, aún durante los primeros meses del embarazo.
- Clínicas de planificación familiar.

Inmunizar a las mujeres en todo contacto que tengan con los servicios de salud, cualquiera sea el motivo:

- Las mujeres que pertenecen a los grupos de alto riesgo, generalmente hacen uso de servicios curativos más que preventivos. Se debiera establecer el nivel de inmunización de cada una, además de vacunarlas en los casos en que sea pertinente.

Administrar TT durante las jornadas de vacunación:

- Por lo menos, se debiera vacunar a las madres que llevan a sus hijos a las campañas.

Llevar a cabo estudios de oportunidades perdidas:

- En los servicios de atención y los vacunatorios, para identificar cuando y como se pierden las oportunidades.
- Cuando los supervisores visitan las clínicas.
- Durante las evaluación de los programas.

Evaluar la situación:

- Registrar cada dosis de TT administrada en la tarjeta de cada mujer.
- Hacer que los servicios notifiquen el tétanos neonatal.
- Notificar la cobertura por población y pos dosis.
- Evaluar el tétanos neonatal por provincia, distrito y servicio cada seis meses, por medio de los casos notificados, las investigaciones de casos, los estudios de oportunidades perdidas y la cobertura de TT.

Investigar todos los casos de tétanos neonatal notificados:

- Establecer por qué no se provino el caso y actuar para prevenir la ocurrencia de casos similares.

Educar a los individuos que pueden influir:

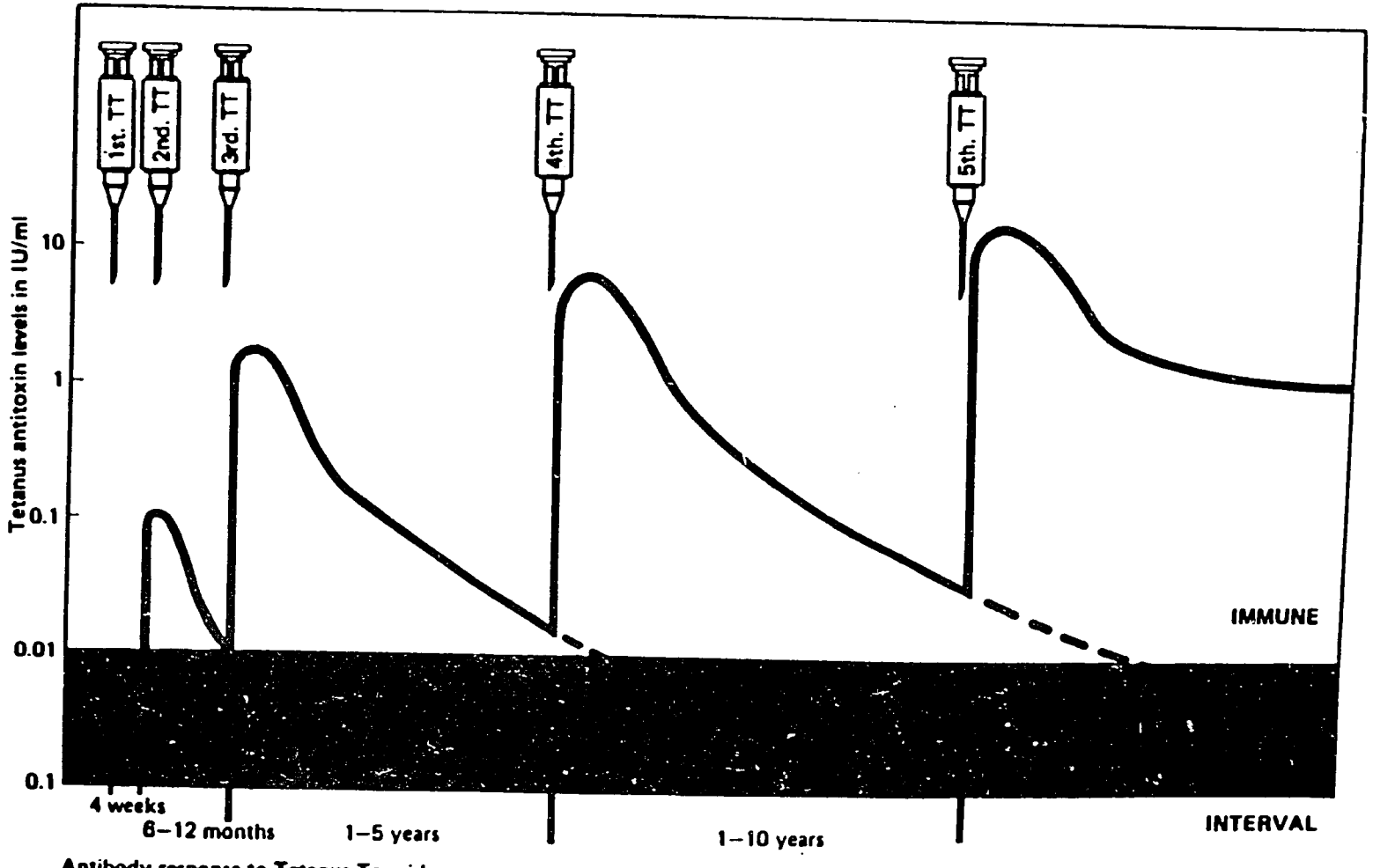
- Informar a los padres, los maestros, los escolares, políticos, líderes religiosos y comunitarios y las organizaciones no gubernamentales acerca de como el TT es efectivo para prevenir el tétanos neonatal.

Informar al personal:

- Discutir la importancia del programa con todo el personal de salud y ayudarles a identificar la forma en que pueden participar.
- Incluir información acerca del tétanos neonatal y el TT en todo el material de educación para la salud.

Fuente: Based on EPI-WHO, Update September 1988, as reported in El Boletín Informativo del PAI, Año X, No. 5, OPS, Washington. Octobre 1988.

ANTIBODY RESPONSE TO TETANUS TOXOID

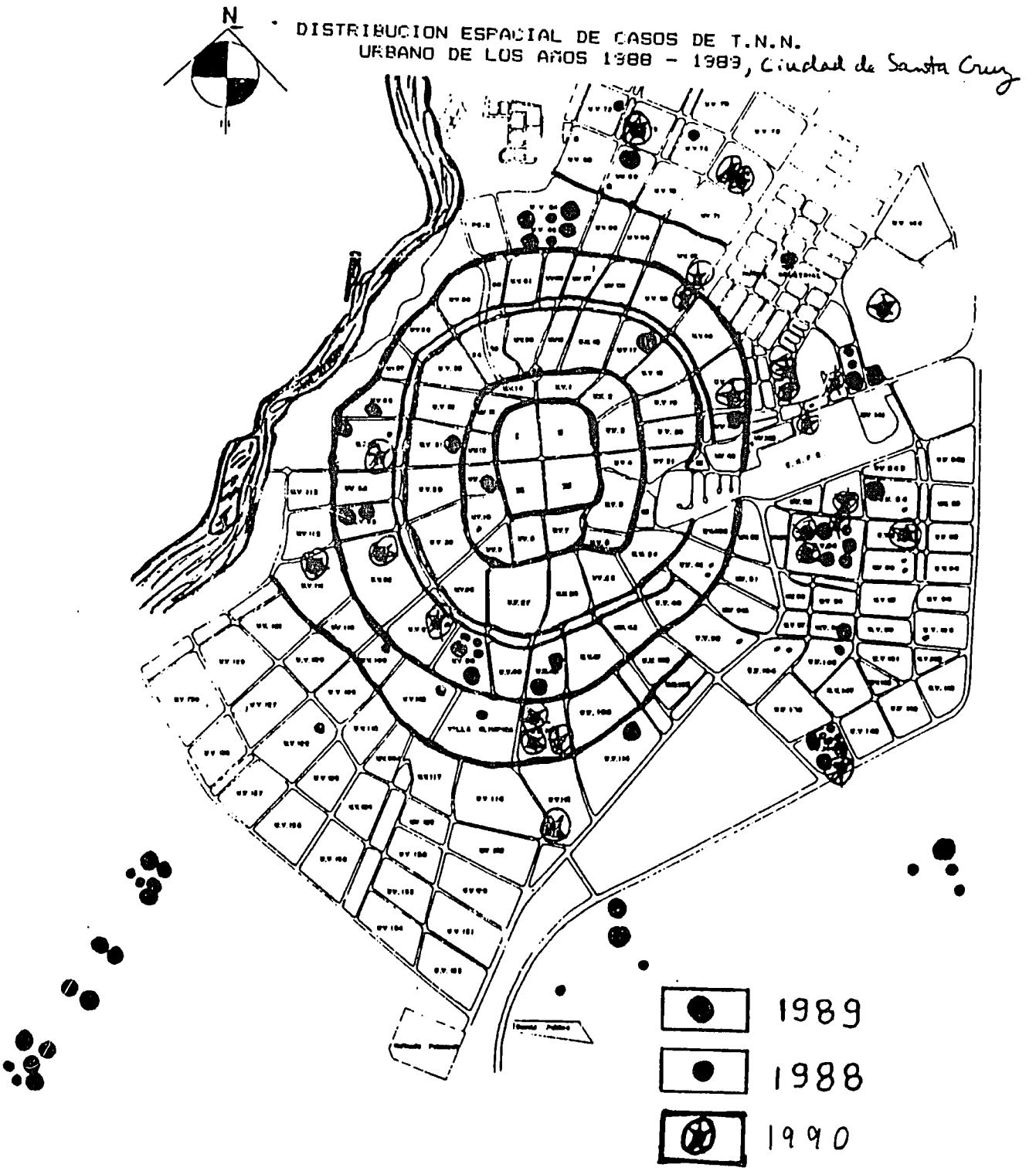


Antibody response to Tetanus Toxoid

This schematic figure shows how antibodies are produced in greater amounts which last for longer time with each successive dose of TT. After two doses of TT (given four weeks apart) protective levels of antitoxin are reached but decline over the next year. The third dose (given 6 to 12 months after the second) provides excellent immunity which lasts for about five years. The fourth dose (first booster) restores protective immunity which then lasts for about ten years. A fifth dose (second booster) should provide protection during child bearing years, and maybe for life.

WHO 881073

ANNEX 5


N
DISTRIBUCION ESPACIAL DE CASOS DE T.N.N.
URBANO DE LOS AÑOS 1988 - 1989, Ciudad de Santa Cruz
1989
1988
1990

ANNEX 6

CASOS DE TETANO NEONATAL POR PROCEDENCIA DEL AÑO DE 1990 EN EL DEPARTAMENTO DE SANTA CRUZ

Fecha de Inicio	Procedencia	urbano	rural	Población del area
4/I/90	Gutierres (Cordillera)		si	
22/I/90	Tipa (A. Ibañez)		si	
23/I/90	Rancho Nuevo (A. Ibañez)		si	
7/II/90	Floresta (Montero)	si	si	
12/II/90	San Jorge (Ciudad)	si		urbano marginal
5/II/90	B. Cañoto (ciudad)	si		suburbano
11/II/90	B. Los Tusequis (ciudad)			urbanomarginal
25/II/90	S. Juan de Lomerio(Ñ. Chaves)		si	
/II/90	Casarabe(Ñ Chavez)		si	
19/III/90	S. Carlos (Ichilo)		si	
20/III/90	Chané Indep (Santiesteban		si	
29/III/90	La Morita(Ciudad)	si		urbanomarginal
30/III/90	Los Tusequis(ciudad)	si		urbanomarginal
31/III/90	Los Chacos (ciudad)	si		urbanomarginal
29/III/90	Virgen Cotoca (ciudad)	si		urbanomarginal
2/IV/90	Tierras Nuevas(ciudad)	si		urbanomarginal
13/IV/90	La Morita (ciudad)	si		urbanomarginal
25/IV/90	B. Bolivar(ciudad)	si		urbanomarginal
27/IV/90	Okinawa (Warnes)		si	
30/IV/90	Okinawa (Warnes)		si	
30/IV/90	Saavedra (Sara)		si	
10/V/90	V. Io de Mayo(ciudad)	si		urbanomarginal
5/V/90	Portachuelo (Sara)		si	
10/V/90	Camiri (Cordillera)		si	
16/V/90	Mineros (Santiesteban)		si	
2/V/90	El Torno(A.Ibañez)		si	
23/VI/90	Io de Mayo (ciudad)	si		urbanomarginal
13/VII/90	Km 6 CBBA (AIbañez)		si	
23/VII/90	Villa Rosario(Ciudad)	si		urbanomargijal
23/VIII/90	B. Conavi(ciudad)	si		suburbano
3/VII/90	S. Ignacio (Velasco)		si	
/90	Mineros (Santiesteban)		si	

Fue recopilado de los hospitales de Niños y Japones, y otras fuentes para contar con lo que existe en el departamento, Acompaño con mapas de distribuc espacial de los casos. Lamentablemente en lo referente a la población, no tu tiempo, pero cuentan en esa en la computadora de epidemiologia distribucion de la poblacion de Santa Cruz por comunidades y otras poblaciones en forma a ximada y en otras censadas. De la ciudad acompaño un mapa con las poblacione estimadas por areas y distritos.

ANNEX 7

PLAN PARA ELIMINACION DEL TNN EN EL DEPARTAMENTO DE SANTA CRUZ, 1991-199

OBJETIVO GLOBAL: Eliminacion del TNN en el Departamento de Santa Cruz,

Metas globales por año para Areas Urbanas.

(Ciudades de Santa Cruz, Montero y Camiri)

AÑO	% DE NACIMIENTOS PROTEGIDOS (POR ENCUESTA)	CASOS DE TNN
1.991	55 % o mas	10 o menos
1.992		3 o menos
1.993	80 % o mas	0 casos
1.994		0 casos
1.995	95 % o mas	0 casos

(Metas globales para Areas Rurales — se elaboran en 1992).

ESTRATEGIA BASICA 1 - CONOCER LA MAGNITUD DEL TNN

SUB - ESTRATEGIAS	ACTIVIDADES	RESPUESTA ESPERADA	FUENTE DE VERIFICACION	RECURSOS Y ASISTENCIA TECNICA
Fortalecer la vigilancia epidemiologica, a traves de:			TNN investigado TNN notificado	
Notificacion de casos y busca activa.	Reforzar la cadena de notificacion y semanal negativa por puestos centinelas.	Captar 100% de TNN urbanos aparecidos, investigados institucionales.	TNN ingresados	Folleteria. Formularios Material y equipos de Capacitacion. Transporte.
Pesquisa de casos.	Organizar la cadena popular de notificacion de casos de TNN (simplificado)	Captar 100% de TNN no institucional notificado e investigado.	< 30 dias de nacido internados Nro. informes recibidos.	
	Mapear todos los casos		Nro. informes esperado.	
	Capacitar a personal de instituciones, parteras, personal de salud local.	Contar con recursos humanos para colecta, almacenamiento, y procesamiento de datos.	Nro. de personas trabajando Nro. de capacitados.	
Tener actualizados los registros de casos de TNN.	Registrar los casos de TNN institucionales investigados y no investigados y retroalimentar a la fuente de origen.	Contar con un sistema de registros agil y actualizado de casos de TNN.		Registros Formularios de notificacion y de referencia.
	Registrar los casos de TNN notificados,investigados y no investigados segun formularios.		Registro de casos de TNN.	
Solicitar la colaboracion de medicos particulares por enviarles tarjetas postales con costo pagado para notificar casos clinicos de TNN.		Tarjetas postales con importe. Que > 50% de tarjetas recibidas.	Nro. de tarjetas recibidas. Nro. de tarjetas enviadas.	Sobres Folleterias Afiches Tarjetas

ESTRATEGIA BASICA

2.- AUMENTAR LA PROTECCION INMUNOLOGICA DE MUJERES DE EDAD FERTIL (MEF) Y ESTUDIANTES.

Cumplir con una encuesta biaual de cobertura en ninos y mujeres para monitorear el progreso.	Encuesta conglomerada en areas urbanas.	Conocer la tasa real de protecci n de MEF y tasa de ninos nacidos protegidos.	Nro. MEF protegidos / Nro. de MEF	Folleteria incentivo asistencia tecnica de REACH.
Reforzar el control prenatal.	Motivar a todo medicos, tanto particulares como gubernamentales, a revisar el carnet y aplicar Td referir a la mujer para Td.	Que todo ginecologo obstetrico participe.	Nro. de ni-os nacidos protegidos. / Nro. de ninos.	Folleteria Registros Vacunas Equipos de vacunacion Equipos de capacitacion.
	Orientar a los medicos en las ultimas normas sobre uso del carnet, inmunizar en cualquier mes, etc.	Un aumento en el numero de nacimientos protegidos para las mujeres que tenian control prenatal.	Nro. de servicios para MEF cambiados / Nro.de servicios de MEF capacitados	Vacunas. Jeringas etc.
	Incorporar al grupo de parteras para capacitacion con apoyo logistico y supervision programada.	Que el personal paramedico realize la aplicacion de Td en toda consulta prenatal.	Por encuesta de cobertura.	
		Que las parteras empiricas apliquen Td a todas MEF que lo requieran.	Nro. de parteras vacunando / Nro. de parteras capacitadas.	
Reforzar la vacunacion en hospitales y centros de salud para reducir a un minimo las oportunidades perdidas a vacunar.	Capacitacion al personal de salud. Solicitar que ofresca en forma continua en horarios de trabajo la Td.	Que las oportunidades de contacto de la comunidad aumenta.	Nro. de MEF con TT1-TT2 / Nro. de TT1	Material de capacitacion.
	Organizar los puestos de vacunacion en los hospitales.	Que las oportunidades perdidas disminuyan.		Afiches sobre derechos y el esquema de 5 dosis.
	Organizar puestos nuevos de vacunacion, en otros centros medicos perifericos, privados y estatales.	Que todos hospitales cuenten con un vacunatorio institucional funcional.	Nro. de vacunatorios func. / Nro. de establecimientos.	Vacuna, jeringas, agujas. Equipamiento de la cadena de frio.
Reforzar por capacitacion en servicio y concientizacion del personal de salud sobre su rol especifico, en promover y vacunar a todo contacto institucional del grupo elegido. (13-44 a-os).	Aumentar supervision regular e educativa.	Que estudios de captacion de vacunas mostraran oportunidades perdidas con niveles bajos.		Afiches de derechos y el esquema de 5 dosis.
Motivar a MEF a la demanda de Td o TT en todo contacto con servicios de salud.	Realizar investigacion cualitativa para conocer causas de resistencias, rechazo, negacion de la vacuna. Conocer las mejores vias de comunicacion, con mensajes a las MEF.	Estudio, anylisis y recomendaciones necesarias.		Vacunas, jeringas, agujas.
	Disenar mensajes y materiales.	Materiales distritbuidos y mensajes en radio.		Asistencia tecnica de REACH.

34.

		Implementar programa de comunicacion social previa capacitacion del personal de salud en tecnicas de acercamiento a la comunidad.	Que la aceptacion del TT o Td por MEF sea expontaneo.	
Reforzar las brigadas de vacunacion casa por casa en los barrios perifericos.	En base de los resultados, definir una estrategia y disenar materiales educativas prueba en terreno. Continuar con vacunas a partir del cuarto anillo hacia la periferie con todas las vacunas del P.A.I.	Completar la primera y segunda ronda con intervalo de 60 dias, y tercera 6 meses despues de la segunda. Aplicar por lo menos 2 Td en todas MEF que las necesiten.	Nro. personas dias trabajados / Nro. personas dias programadas. Nro. de TT / Nro. personas dias trabajadas	10 vacunadores. vacunas, jeringas, etc.
Reforzar la vacunacion de MEF durante las jornadas masivas.	Orientar a los vacunadores que participen en las jornadas sobre enfasis en MEF. Promover las jornadas como actividad para todas MEF (13 a 44 anos) y ninos menores de 5 anos. Usar los medios de comunicacion mas comunes con mensajes orientados a la demanda de los grupos objetos.	Cuantificar comparativamente la demanda de MEF de vacunas en jornadas.	Nro. de MEF con TT1-TT2 / Nro. de TT1	
Asegurar que toda persona vacunada recibe su carnet o que se anote las dosis aplicadas en su carnet.	Capacitar al personal de salud. Divulgar mensajes sobre la importancia y valor del carnet de vacuna. Proponer a nivel nacional la posibilidad de redisenar el carnet.	Las encuestas de cobertura deben mostrar un aumento en el % de MEF que tienen carnets. Tener un carnet sin ambiguedad sobre las 5 dosis de TT/Td y los intervalos minimos.	Nro. de MEF con carnets / Nro. de MEF	
Iniciar vacunacion de escolares en areas urbanas (1991) y rurales (1992) (escuelas fiscales).	Planear toda la logistica de este esfuerzo. Preparar una guia para los maestros a dar una charla sobre la inmunizacion, el dia antes que se vacunan en cada escuela. Implementar las inmunizaciones en dos fases: En el ano de inicio 2 dosis de Td con intervalo minimo de 6 meses a todos los estudiantes (mujeres + varones) en los niveles basico, intermedio y medio y una dosis de OPV en cada grado del nivel basico. En anos siguientes, una dosis de Td a cada estudiante en el grado 1, 2 y 3ro; y una dosis de OPV y sarampion en el grado 1ro.	Monitorear el numero de escuelas y alumnos que participan, y la contribucion a proteccion completa. Aplicar TT o Td segun normas.	Nro. de estudiantes vacunados con ca dosis / Nro. de estudiantes inscritos Nro. de TT1 - TT2 / Nro. de TT1	Vacunas, jeringas, etc. Gasolina, vacuna. jeringas, agujas, carnets.

Iniciar barridos perifocales en las areas donde procedan casos de TNN (areas urbanas comenzando en 1,991; rurales en 1.993).	Aplicar la metodologia del bloqueo de polio,		Nro. de MEF que reciben TT1+TT2 / Nro. de MEF que necesitan TT1+TT2	
	Implementar una vacunacion de MEF alrededor de cada caso, con promocion por afiches y parlantes que enfatiza la urgencia (repetir des - pues de un mes).	Monitorear el numero de sesiones y la contribucion a proteccion completa.		
Iniciar o continuar vacunacion en sitios especiales.	Organizar un puesto de vacunacion en los mercados (un sabado cada 4 meses)			Gasolina, viaticos, vacuna, jeringas, agujas, carnets.
Iniciar un proyecto piloto de establecer puestos de vacunacion del PAI en farmacias (1.991).	Establecer criteria para escoger 6 farmacias para tener puestos de vacunacion experimental en periferia	Despues de 3 meses, analisar el rendimiento de esta estrategia y decidir como proceder.		Vacuna, jeringas, etc. Afiches de derechos y la esquema de 5 dosis.
	Establecer normas claros de las responsabilidades y requerimientos de la Unidad Sanitaria y de las farmacias (por ejemplo vacuna gratis).	Entrevistar a MEF saliendo de las farmacias para aprender su satisfaccion y el precio cobrado.	DDT1 - DPT3 / DPT1 and TT1-TT2 / TT1	

ANNEX 8

MINISTERIO DE PREVISION SOCIAL Y SALUD PUBLICA
DIRECCION NACIONAL DE EPIDEMIOLOGIA

FORMULARIO DE INVESTIGACION INDIVIDUAL DE CASOS DE TNN

IDENTIFICACION DE LA INSTITUCION QUE NOTIFICA EL CASO Caso No._____
Nombre y apellido: _____ Cargo: _____
Institución: _____ Area: _____
Distrito: _____ Unidad Sanitaria: _____
Caso investigado? SI__ NO__

IDENTIFICACION DEL PACIENTE
Nombre y apellido: _____ Sexo:M__ F__
Fecha de nacimiento: __/__/__ Edad cuando iniciaron los síntomas: _____
Dirección:(Calle y No.) _____ Localidad: _____
Provincia: _____ Departamento: _____

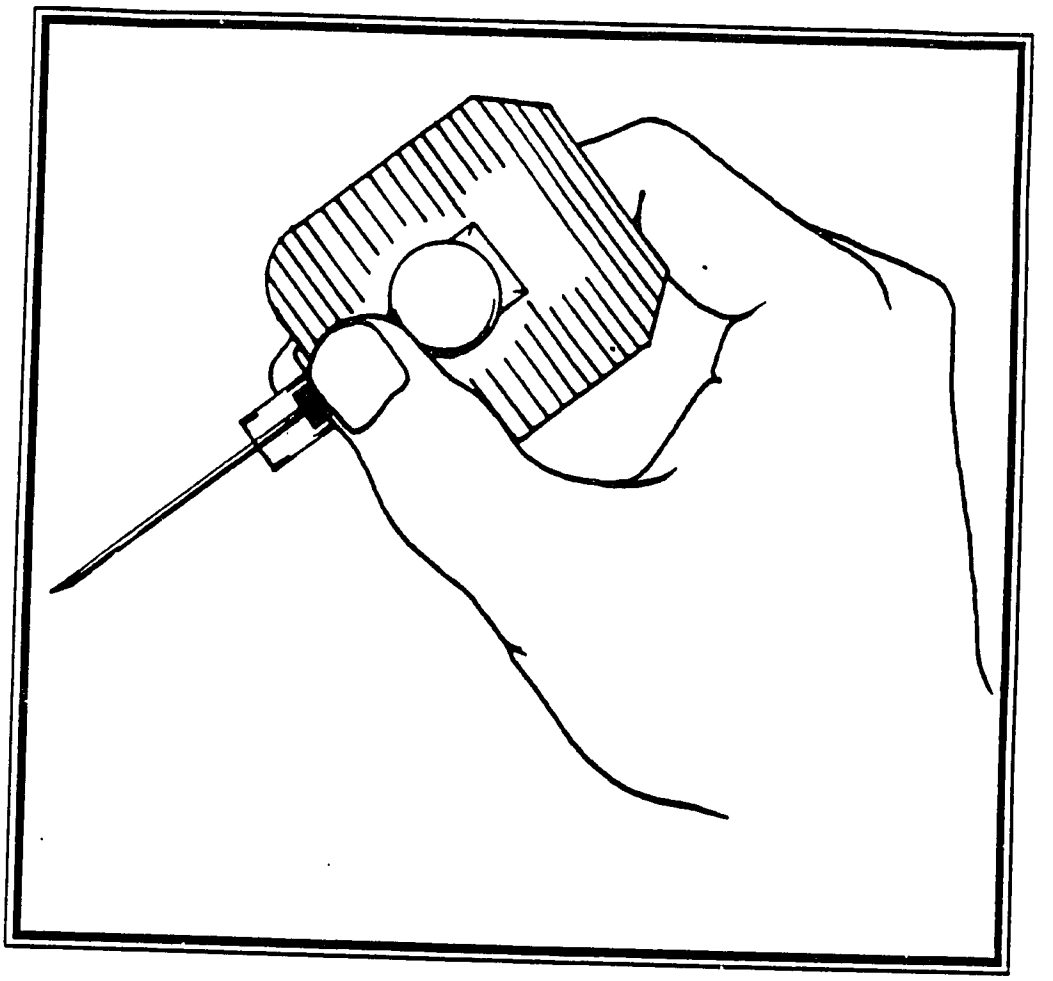
DATOS CLINICOS
Fecha de inicio de los síntomas: __/__/__ Fue hospitalizado? SI__ NO__
Caso afirmativo, nombre del hospital: _____
Fecha de admision: __/__/__ Fecha de egreso: __/__/__ Días de estancia__
Tipo de egreso: Alta clínica__ Salida solicitada__ Defunción__
No. de historia clínica: _____ Fecha de defunción (si aplica): __/__/__
Manifestaciones clínicas:
Llanto y succion normales en los primeros 2 días de vida? SI__ NO__
Comienzo de mal entre la edad de 3 y 28 dias? SI__ NO__
Inhabilidad para succionar seguido por rigidez muscular y/o convulsiones? SI__ NO__

ANTECEDENTES MATERNOS
Edad de la madre: ____ Datos obstétricos: Gesta__ Para__ Abortos__
Lugar donde ocurió el parto:
Domiciliar__ Institucional__ Nombre de institución: _____
Atención del parto:
Médico__ Enfermera/Auxiliar__ Partera__ Otro__(Especificar) _____
Con qué fue cortado el cordón umbelical? _____
Se aplicó al cordón algún material potencialmente contaminado? SI__ NO__
Caso afirmativo, especificar: _____
Ha tenido otro hijo con TNN o con cuadro compatible con TNN? SI__ NO__
Caso afirmativo, indique el número del parto(s): _____
Hizo control prenatal? SI__ NO__ Caso afirmativo, No. de controles: ____
Lugar o establecimiento donde ocurrio el control? _____
Mes gestacional del 1er control prenatal: _____
Mes gestacional del último control prenatal: _____
Vacunación anti-tetánica de la madre: No. total de dosis recibidas: ____
Existe un carnet de vacunacion? SI____ NO____
Primera dosis: __/__/__ Segunda dosis: __/__/__ Tercera dosis: __/__/__
Cuarta dosis: __/__/__ Quinta dosis: __/__/__ Ultima dosis: __/__/__
Lugar o establecimiento donde se aplicó la última dosis: _____

INVESTIGADOR:
Especificamente como podría estar prevenido este caso?
_____
_____
Acción realizada _____
Nombre(en imprenta) _____ Cargo: _____
Firma: _____ Fecha: _____

ANNEX 9

Prefilled Unit Dose, Single Use Injection System



ANNEX 10

PROPOSED URBAN AND RURAL IMMUNIZATION STRATEGIES IN PUBLIC SCHOOLS, BY YEAR OF IMPLEMENTATION, SANTA CRUZ DEPARTMENT

AREA	IMPLEMENTATION YEAR	BACKLOG STRATEGY	MAINTENANCE STRATEGY
URBAN	first year (1991)	- all grades* x 2 Td** - primary grades x 1 OPV	---
	second year (1992) and following years	---	- grades 1,2,3 x 1 Td - grade 1 x 1 OPV - grade 1 x 1 measles
RURAL	first year (1991)	---	---
	second year (1992)	- all grades x 2 Td - primary grades x 1 OPV	--- ---
	third year (1993) and following years	---	- grades 1,2,3 x 1 Td - grade 1 x 1 OPV - grade 1 x 1 measles

* "All grades" signifies primary, intermediate and "medio".
** Td to be given to females and, if supplies permit, to males.

ANNEX 12

PROPOSED BUDGET BY STRATEGY AND YEAR (Bs)

	1991	1992
ACTIVE SEARCH FOR CASES		
gasoline: 20 liters daily for 20 days per year (Santa Cruz City) 1 liter = 1.5 Bs.	600	600
gasoline: 40 liters per year (Montero)	60	60
transport: to/from Camiri	40	40
to/from each of 7 districts twice per year for epidemiologist	872	872
per diem: for training in Camiri: 35Bs. x 3 days	105	-
for training in Montero: 10Bs x 1 day	10	-
for epidemiologist to travel to 7 districts two times per year for 3 days at 40Bs./day	1680	1680
TRAINING PARTERAS FOR REPORTING CASES, ADMINISTERING TT AND SAFE DELIVERY		
10 training sessions in total for 3 cities, 3 days per session and 100 persons to be trained in total		
transport: 100 persons x 3 days x 2Bs. (1 day only in 2nd year)	600	200
per diem (meal): 10 sessions x 3 days x 35 Bs. (1 day only in 2nd year)	1050	350
CLUSTER SURVEY		
up to 5 in districts of Santa Cruz, Montero and Camiri cities		
transport: 7 teams x 2 persons/team x 7 days x 2 Bs. x 3 surveys	2940	-
per diem (meal): 14 persons x 10 Bs. x 7 days x 3 surveys	14700	-

(TECHNICAL ASSISTANCE FROM REACH TO BE PROVIDED FOR SURVEYS.)
(Up to $5000 for serology to be identified)

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"BARRIDOS" (SWEEPING) VACCINATION IN PERIPHERY		
in Santa Cruz City only		
per diem (meals):		
10 persons x 26 days/month x 6 months x 15 Bs.	23,400	23,400
gasoline: 20 liters/day x 156 days x 1.5 Bs./liter	4,680	4,680
VACCINATION IN MARKETS		
10 markets in 3 cities to be visited every 4 months		
per diem (meal):		
4 persons x 10 markets x 3 times/year x 1 day x 10 Bs.	1,200	1,200
transport: 120 person days x 2 Bs.	240	240
SCHOOL VACCINATION		
200 schools in 3 cities in 1st year to be vaccinated by teachers being trained in the Normal School.		
transport: 200 schools x 2 Bs.	400	-
per diem (meal): 200 days x 10 Bs.	2,000	-
rural schools to be covered as part of routine responsibility of nearby health authorities.	-	-
100 schools in 3 cities to be vaccinated in 2nd year.		
transport: 100 schools x 2 Bs.	-	200
per diem (food): 100 days x 10 Bs.	-	1,000
COMMUNICATIONS MATERIALS		
information to be provided to over 1200 doctors in the Department of Santa Cruz about the EPI norms, their role in referral and vaccination, and diseases notification.		
materials: 2700 packets consisting of: envelope, stamped pre-addressed postcard, letter, list of places and times to get immunization, flyer, poster, norms, information about disease notification.		
2700 x 2Bs.	5,400	5,400

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per diem (meal):	10 days x 10 Bs.	100	100
	70 persons x 5 Bs. in focus groups	350	-
transport:	10 days x 10 Bs.	100	100
services:	10 days x 40 Bs. for moderator	400	-
equipment:	tape recorder, tapes and batteries	220	-
services:	radio air time in Santa Cruz at 3.5 Bs. per message x 1200 messages per year.	4200	4200
	radio air time in Montero at 1.17 Bs x 1200 messages per year.	1400	1400
	radio time in Camiri at 1.17 Bs. x 1200 messages per year.	1400	1400

(TWO TRIPS FROM REACH FOR TECHNICAL ASSISTANCE FOR RESEARCH AND OPERATIONALIZING FINDINGS.)

EQUIPMENT AND SUPPLIES REQUIRED

- 44 refrigerators have already been requested from La Paz, but arrival still not known.
- 20 King-Seeley vaccine carriers required from La Paz.
- additional requirements for school vaccination program include:

		Quantity Required		
		1991	1992	1993
vaccination cards		150,000	95,000	27,000
vaccine :	Td (doses)	297,000	210,000	83,000
	OPV (doses)	83,000	85,000	29,000
	Measles (doses)	-	15,000	28,000
syringes/needles:		270,000	195,000	96,000

- above vaccine, syringes and needles to be provided from La Paz.

GRAND TOTAL	68,147*	47,122*

* Does not include incremental quantities of vaccine, syringes/needles, and cards (due to the new school strategy) which are estimated to cost $28,000 in the first year, $23,000 in the second year, and $13,000 in the third and each following year.

-42'

ANNEX 13

PROPOSED BUDGET BY BUDGET CATEGORY (Bs)

	1991	1992		
TRANSPORT	5,192	1,652		
PER DIEM	44,595	27,730		
SERVICES	7,400	7,000		
EQUIPMENT	220	-		
POSTERS, ETC.	5,400	5,400		
GASOLINE	5,340	5,340		
GRAND TOTAL	68,147	47,122	=	115,269 ($32,934) ($1=3.5 Bs.)

Note: Incremental quantities of vaccine, syringes/needles, and cards will be required for the school program and are not budgeted above. Their cost can be estimated at $28,000 in the first year, $23,000 in the second year, and $13,000 in the third and each following year.

ANNEX 14

APPROXIMATE VACCINE REQUIREMENTS FOR PROPOSED PUBLIC SCHOOL IMMUNIZATION STRATEGIES BY YEAR, SANTA CRUZ DEPARTMENT

YEAR	STRATEGY	LOCATION	VACCINE	NUMBER ELIGIBLE	DOSES NEEDED	WASTAGE FACTOR	TOTAL DOSES
1ST (1991)	ALL GRADES	URBAN	Td	135,000	X 2	X 1.1	297,000
	PRIMARY GRADES	URBAN	OPV	75,000	X 1	X 1.1	83,000
2ND (1992)	ALL GRADES	RURAL	Td	72,000	X 2	X 1.15	166,000
	PRIMARY GRADES	RURAL	OPV	60,000	X 1	X 1.15	69,000
	GRADES 1,2,3	URBAN	Td	38,000	X 1	X 1.15	43,700
	GRADE 1	URBAN	OPV	13,000	X 1	X 1.2	15,600
	GRADE 1	URBAN	MEASLES	13,000	X 1	X 1.15	15,000
3RD (1993) AND FOR EACH YEAR AFTER	GRADES 1,2,3	URBAN	Td	40,000	X 1	X 1.15	46,000
	GRADES 1,2,3	RURAL	Td	32,000	X 1	X 1.15	36,800
	GRADE 1	URBAN	OPV	13,000	X 1	X 1.2	15,600
	GRADE 1	URBAN	MEASLES	13,000	X 1	X 1.15	15,000
	GRADE 1	RURAL	OPV	11,000	X 1	X 1.2	13,200
	GRADE 1	RURAL	MEASLES	11,000	X 1	X 1.15	12,700

notes:
- assumes 100% coverage can be achieved.
- number of eligibles based on school enrollment figures adjusted slightly upwards.
- Td to be given to both females and males (supplies permitting).
- "All grades" signifies primary, intermediate and "medio" levels.

ANNEX 15

ANNUAL REQUIREMENTS FOR VACCINE, SYRINGES/NEEDLES AND CARDS FOR PROPOSED IMMUNIZATION STRATEGIES IN PUBLIC SCHOOLS, SANTA CRUZ DEPARTMENT

YEAR OF IMPLEMENTATION	DISPOSABLE SYRINGES/NEEDLES	CARDS	VACCINES (DOSES)			APPROX. COST
			Td	OPV	MEASLES	
1991	270,000	150,000	297,000	83,000	---	$28,000
1992	195,000	95,000	210,000	85,000	15,000	$23,000
1993 and each year following	96,000	27,000	83,000	29,000	28,000	$13,000

ANNEX 16
PROPOSED TRAINING SUPPORT TO NNT ELIMINATION PLAN

RECICLAGE PARA APOYAR ESTRATEGIAS DE CONTOL DEL TETANOS NEONATAL

"TOPICOS"	TIPO DE PERSONAL (RURAL & URBAN)						
	OBSTETRAS (50)	PEDIATRAS (70)	VACUNADORES (60)	ENFERMERAS E AUXILIARES (150)	EDUCADORES Y MAESTROS (160)	OTRO PERSONAL DE DE SALUD	OTRO PERSONAL HOSPITALAR
1. Esquemas de Protección anti-tetánica	X	X	X	X	X	X	X
2. Vacunación antitetanica en cualquier mes del embarazo	X	X	X		X		
3. Oportunidades perdidas de vacunación	X	X	X	X	X		
4. Acceso a la vacunación y como aumentar la acesibilidad (vacunación todos los dias)						X	X
5. Porque se acepta o se rechaza una vacuna y como facilitar la aceptacion		X	X	X	X	X	
6. Revisión y llevado de las tarjetas de vacunacion infantil y de mujeres en edad fertil	X	X	X	X	X	X	X
7. Notificación de Casos de TNN y vigilancia Epidemiológica		X	X	X	X	X	X

ANNEX 17

SUGGESTED IMPROVEMENTS IN NATIONAL EPI POSTERS, MANUALS, CARD

A number of national EPI posters and manuals and the national women's immunization card are sending either incorrect, unclear, or conflicting messages to health workers and parents. Below is a brief summary of these problems along with some suggested improvements.

National EPI Poster "Prevenir Antes Que Curar" (see Exhibit 1)

The poster is colorful and attractive but there are several problems with the text. The number of doses for TT should be five, not two. The age groups for BCG, DPT, polio, and measles all have age ranges up to five years old. While these age groups may be the official target groups, parents or health workers who see this poster do not receive the crucial message about the optimum age for receiving these antigens, which is always as soon as possible after the child reaches the minimum age. Thus, the age for measles should be "as soon as possible after the child reaches nine months," not "nine months to five years." A full page advertisement in the 1990 La Paz telephone directory contains the same information as the poster (see Exhibit 2).

The Pamphlet "Protejamos A Nuestros Niños" (see Exhibit 3)

Again, it is advised to "Immunize newborns and children under five." Why not state clearly "Give three doses beginning when the child is six weeks old"? The DPT section has the same problem, plus it promises that "the three doses guarantee the child's health." This is a patently false promise that should not be made and that could cause parents to stop immunizing their children because the first immunizations did not make their child healthy. Why not say "the three doses protect the child against these dangerous diseases"?

The Women's Immunization Card (see Exhibit 4)

The current card, which was redesigned recently, leads to confusion regarding both the number of doses and the relation between TT and Td. Why not have one row of five boxes in which the health care worker puts the dates of either TT or Td? Below there would be room for the information contained in the tetanus scheme poster (see Annex 18). An example of what a redesigned immunization card might look like is shown in Exhibit 5.

Programa Ampliado de Inmunizaciones. Manual Tecnico. 2a Edición, 1988 (see Exhibit 6)

The chart on page 35 implies that (only) pregnant women should get TT in their fifth and seventh months and that two doses is sufficient for protection. The information on page 42 gives the interval between doses as six to eight weeks (it should be four weeks between TT1 and TT2, six months or more between TT2 and TT3, etc.). The text gives the duration of immunity as 10 years, instead of only 3 years according to WHO/Geneva.

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EXHIBIT 1

MINISTERIO DE PREVISION SOCIAL Y SALUD PUBLICA

PREVENIR ANTES QUE CURAR

VACUNA	¿ QUE ENFERMEDAD PREVIENE ?	¿ A QUE EDAD SE APLICA ?	¿ POR QUE VIA ?	¿ CUANTAS DOSIS ?
BCG	TUBERCULOSIS	DE RECIEN NACIDO A MENOR DE 5 AÑOS REFUERZO 1er. CURSO BASICO	INTRADERMICA	1 UNA DOSIS Y UN REFUERZO SON NECESARIOS
DPT (TRIPLE)	DIFTERIA TETANOS COQUELUCHE	DE 2 MESES A MENORES DE 5 AÑOS	INTRAMUSCULAR	3 DOSIS
ANTIPOLIO	POLIOMIELITIS	DE RECIEN NACIDO A MENORES DE 5 AÑOS	ORAL	SOLO CON TRES DOSIS SU NIÑO ESTARA PROTEGIDO
ANTI SARAMPION	SARAMPION	DE 9 MESES A MENORES DE 5 AÑOS	SUBCUTANEA	1 UNA SOLA DOSIS
TOXOIDE TETANICO	TETANOS DEL RECIEN NACIDO	MUJERES ENTRE 15 Y 44 AÑOS PRINCIPALMENTE EMBARAZADAS	INTRAMUSCULAR	2 DOSIS

¡Por salud... obra de todos!

EXHIBIT 2

UNIDAD SANITARIA "LA PAZ"

Av. Mcal. Sta. Cruz Ed. Lotería P-7

TELEFONOS DE URGENCIA:

DIRECCION	37-5477	Av. Mcal. Sta. Cruz Ed. Lotería P-7
ADMINISTRACION	37-6677	Av. Mcal. Sta. Cruz Ed. Lotería P-7
DEPARTAMENTO DE PERSONAL	37-4713	Av. Mcal. Sta. Cruz Ed. Lotería P-7
NUTRICION	37-6460	Av. Mcal. Sta. Cruz Ed. Lotería P-7
EPIDEMIOLOGIA	36-9141	Av. Perú esq. Ismael Vásquez
SANEAMIENTO AMBIENTAL	37-4963	Av. Landaeta, c. Valentín Abecia Pje. 3 Nº 27

EVITA ENFERMEDADES A TUS HIJOS, VACUNALOS A TIEMPO

VACUNA	*¿QUE ENFERMEDAD PREVIENE?*	*¿A QUE EDAD SE APLICA?*	*¿POR QUE VIA?*	*¿CUANTAS DOSIS?*
BCG	TUBERCULOSIS	DE RECIEN NACIDO A MENOR DE 3 AÑOS REFUERZO 1er. CURSO BASICO	INTRADERMICA	UNA DOSIS Y UN REFUERZO SON NECESARIOS 1
DPT (Triple)	DIFTERIA TETANOS COQUELUCHE	DE 2 MESES A MENORES DE 3 AÑOS	INTRAMUSCULAR	3 DOSIS
ANTIPOLIO	POLIOMIELITIS	DE RECIEN NACIDO A MENORES DE 3 AÑOS	ORAL	SOLO CON 3 DOSIS SU NIÑO ESTARA PROTEGIDO
ANTI SARAMPION	SARAMPION	DE 9 MESES A MENORES DE 3 AÑOS	SUBCUTANEA	UNA SOLA DOSIS ES NECESARIA 1
TOXOIDE TETANICO	TETANOS DEL RECIEN NACIDO	MUJERES ENTRE 15 AÑOS Y 44 AÑOS PRINCIPALMENTE EMBARAZADAS	INTRAMUSCULAR	2 DOSIS

ROL DE ATENCION DE VACUNAS

INSTITUCION Y HORARIO	DIRECCION	B.C.G.	ANTIPOLIO D.P.T.	ANTI-SARAMPIONOSA	ANTIAMARILICA
CENTRO PILOTO	CHALLAPAMPA	LUNES A VIERNES	LUNES A VIERNES	LUNES A VIERNES	LUNES, MIERCOLES Y VIERNES Horas: 14:30 a 16:30 MARTES Y JUEVES Horas: 9:30 a 11:30
CENTRO DE SALUD "LA PAZ" Nº 1 Horas: 8:00 a 11:00 y 14:00 a 16:30	GARITA DE LIMA Teléfono: 37-6664	MARTES Y VIERNES DE CADA SEMANA	LUNES A VIERNES	LUNES Y JUEVES	
CENTRO DE SALUD "LA PAZ" Nº 2 Horas: 8:30 a 12:30	AV. SIMON BOLIVAR Teléfono: 118	MARTES Y JUEVES DE CADA SEMANA	LUNES A VIERNES	MARTES Y JUEVES DE CADA SEMANA	
CENTRO DE SALUD "EL ALTO" Horas: 9:00 a 15:00	CEJA DE EL ALTO Teléfono: 81-0116	LUNES DE CADA SEMANA	LUNES A VIERNES	VIERNES DE CADA SEMANA	

EXHIBIT 3

LA SALUD ...
OBRA DE TODOS!

PROTEJAMOS A NUESTROS NIÑOS

LA UNIDAD NACIONAL
POR EL BINOMIO MADRE - NIÑO

- NOTIFICA SI CONOCES UN CASO DE SARAMPION
- NOTIFICA SI CONOCES UN CASO DE PARALISIS (POLIOMIELITIS)

LA PAZ	POTOSI	SUCRE	COBIJA
369141	22346	24093	2286
375477	COCHABAMBA	TRINIDAD	TARIJA
375466	29441	22344	3266
SANTA CRUZ	ORURO	TUPIZA	RIBERALTA
43440	52001	393	604

LAS VACUNAS SON GRATUITAS

- Los niños de 1 a 5 años recibiran las gotitas de VITAMINA A

Los niños de 2 a 9 años recibiran MEBENDAZOLE (DESPARASITACION) Trópico y Valles

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EL CARNET DE SALUD INFANTIL ES NECESARIO PARA EL CONTROL MEDICO Y LAS VACUNACIONES.
¡CONSERVELO!

SARAMPION

Es una enfermedad muy contagiosa. Ataca a las vías respiratorias. Se transmite directamente por medio de las gotitas de saliva expulsadas por el enfermo al toser o estornudar.

Se debe vacunar a los niños de 9 meses a menores de 5 años.

ES NECESARIA 1 SOLA DOSIS

POLIOMIELITIS

Ataca al sistema nervioso. En casos graves, produce la parálisis en piernas y brazos.

Es muy contagiosa. La transmisión se realiza por contacto directo con las secreciones de la boca o heces infectadas.

COMO PREVENIR ESTAS ENFERMEDADES

Vacunado a los niños recién nacidos, a menores de 5 años.

La vacuna es administrada en forma oral.

3 DOSIS Y SU NIÑO ESTARA PROTEGIDO.

DIFTERIA

Afecta a las amigdalas, faringe, mucosa nasal y la piel. Se contagia a través de un enfermo portador y el contacto con objetos contaminados.

COQUELUCHE

Produce gran daño a la tráquea y a los pulmones. Es contagiada por medio de las secreciones respiratorias expulsadas por la tos del enfermo.

TETANOS

Los gérmenes del tétanos crecen en heridas sucias y causan la muerte en las personas no vacunadas.

Estas tres enfermedades pueden evitarse por medio de la vacuna DPT (TRIPLE), aplicada a todos los niños de 2 meses a menores de 5 años.

LAS 3 DOSIS GARANTIZAN LA SALUD DEL NIÑO

TETANOS NEONATAL

Si la madre no esta vacunada, el niño corre el peligro de contraer esta enfermedad al momento de cortar el cordón umbilical con instrumentos no esterilizados.

Todas las mujeres estén o no embarazadas deben recibir el **TOXOIDE TETANICO.**
Por lo menos 2 dosis

5 DOSIS SON NECESARIAS

ROTARY • USAID
UNFPA
UNICEF • OPS /OMS
MINISTERIO DE PREVISION SOCIAL Y SALUD PUBLICA
PL - 480

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EXHIBIT 4

NEW CARD

MINISTERIO DE PREVISION SOCIAL Y SALUD PUBLICA

DIRECCION NACIONAL DE EPIDEMIOLOGIA

CONSEJO POPULAR NAL. DE SALUD

CARNET DE VACUNACION

NOMBRE: .....

.....

UNIDAD SANITARIA: .....

.....

FECHA: .....

VACUNA	NUMERO DE DOSIS 1ra.	2da.	3ra.	4ta.	5ta.	ANOTE LA FECHA EN QUE ESTA VACUNANDO
TOXOIDE TETANICO						
(D.T.) DIFTERIA-TETANOS						
FIEBRE AMARILLA						
OTRAS						

OLD VERSION

MINISTERIO DE PREVISION SOCIAL Y SALUD PUBLICA

CONSEJO POPULAR NAL. DE SALUD

CARNET DE VACUNACION

NOMBRE: _____

_____

UNIDAD SANITARIA _____

_____

FECHA _____

VACUNA	NUMERO DE DOSIS		REFUERZO
	PRIMERA	SEGUNDA	
(D. T.) DIFTERIA TETANOS			
TOXOIDE TETANICO			
FIEBRE AMARILLA			
OTRAS			

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EXHIBIT 5

Ministerio de Prevision
Social y Salud Publica
Direction National
de Epidemiológia

Consejo popular Nal. de Salud

Nombre: _____

Unidad Sanitaria: _____

Año de Nacimientos: _____

- Se necesitan 5 dosis de la vacuna contra el tétano (o TT o Td) para que Ud. y sus futuros bebés sean protegidos contra esta enfermedad seria.
- Se necesita inmunizar sus bebés 3 o 4 veces antes que cumplan un año de vida para protegerlos contra el pólio, el sarampión, la tuberculosis, las tos ferina, y el tétano.
- Traiga este carnet de immunización cada vez que Ud. visite un servicio de salud pública por cualquier razón.

VACUNA	Numero de Dosis				
	1 ra	2 da	3 ra	4 ta	5 ta
Toxoid de Tetanico (TT ò Td)					
Fiebre Amarillo			Anote la Fecha en Que Esta Vacunando		
Otras: _____					
_____					

EXHIBIT 6

Programa Ampliado de Inmunizaciones

MANUAL TECNICO

2da. Edición 1988

MINISTERIO DE PREVISION SOCIAL Y SALUD PUBLICA
DIRECCION NACIONAL DE EPIDEMIOLOGIA
BOLIVIA

ESQUEMA DE VACUNACION

EDADES	VACUNAS	
	TIPO	DOSIS
Recién nacidos hasta menores de 3 años	- B. C. G.	Dosis única
Recién nacidos	- Polio oral trivalente	Dosis inicial
2 meses	- D. P. T. - Polio oral trivalente	1ra. dosis
4 meses	- D. P. T. - Polio oral trivalente	2da. dosis
6 meses	- D. P. T. - Polio oral trivalente	3ra. dosis
9 meses	- Sarampión	Dosis única
Embarazadas (5 y 7 meses de embarazo)	Toxoide Tetánico	2 Dosis

TOXOIDE TETANICO

DESCRIPCION
El toxoide tetánico es toxina inactivada por formalina de un cultivo anaerobio de Clostridium tetani.

CONSERVACION Y PRESENTACION
La vacuna se debe mantener refrigerada a una temperatura de 0°C a 8°C, pero no congelada.
El toxoide tetánico se encuentra disponible en ampollas de 1,5 y 20 dosis.

VIA DE ADMINISTRACION, EDAD Y DOSIS
Son necesarias dos dosis de 0.5 cc. de toxoide tetánico administradas por via intramuscular con intervalo de seis a ocho semanas. en embarazadas.

REACCIONES ESPECIFICAS
La vacuna no provoca reacción local ni general de importancia.

DURACION DE LA INMUNIDAD
Por lo menos 10 años.

ANNEX 18

DRAFTS OF TWO POSTERS

POSTER 1

Programa Ampliado de Inmunizaciones
Unidades Sanitarias de Santa Cruz y Montero

LOS DERECHOS DE LA FAMILIA CRUCEÑA
en relación a las inmunizaciones

CADA FAMILIA TIENE EL DERECHO DE ESPERAR QUE EL PERSONAL DE SALUD:

1. Revise el carnet de inmunización cada vez que esté en contacto con una mujer o niño.

2. Aplique cada inmunización que la mujer o niño deben recibir en el momento.

3. Explique a los padres:

   * que se puede vacunar sin problema a una mujer o niño que esté un poco enfermo.

   * los nombres de las enfermedades que las inmunizaciones aplicadas están protegiendo.

   * que es normal que la inmunización cause una hinchazón ligera o fiebre moderada, y que estos efectos secundarios no deben durar más de dos días y que son faciles a tratar con aspirina. Además, estos son señales de que la vacuna está comenzando a proteger a la mujer o niño.

4. Llene el carnet y explique cuando la mujer o niño tienen que volver para la próxima inmunización, que es esencial para protegerse.

5. Responda a preguntas y agradezca al padre por su acción de responsabilidad. (También las familias cruceñas deben agradecer al personal de salud por su trabajo vital en protegerlas contra una serie de enfermedades graves.)

ESTE ES EL PRIMER BORRADOR DE UN AFICHE QUE SE PUEDE USAR EN TODOS LOS LUGARES DE VACUNACION, EN CLUBES U ORGANIZACIONES, Y EN OTROS LUGARES PUBLICOS. EL BORRADOR DEBE SER REVISADO PARA MEJORAR EL LENGUAJE Y LOS PUNTOS TECNICOS. SE DEBE MOSTRAR EL BORRADOR A PERSONAL DE SALUD Y MADRES PARA VER SI ES FACIL DE ENTENDER, SI LES GUSTA O NO Y PORQUE, SI CONTIENE INFORMACION UTIL PARA ELLOS, Y SE TENDRIAN CUALQUIER SUGERENCIA PARA MEJORARLO.

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POSTER 2

Esquema de Vacunación de Mujeres con Toxoíde Tetanico*

DOSIS	CUANDO ADMINISTRAR	DURACION DE INMUNIDAD (para la mujer y su recien nacido)
TT1	Al primer contacto que una mujer realice con el servicio y/o al margen del embarazo	ninguno
TT2	Por lo menos cuatro semanas después de TT1	3 años
TT3	Por lo menos seis meses después de TT2	5 años
TT4	Por lo menos un año después de TT3 o durarte el próximo embarazo	10 años
TT5	Por lo menos un año después de TT4 o durante el próximo embarazo	Por toda la edad fertil

* Se puede aplicar o TT or Td con igual efectividad

Personal de salud, recuerden :

- o Verificar el estado de inmunización de cada mujer en edad fertil y aplicar la dosis que le corresponde.
- o En caso que la mujer este embarazada, aplicar TT o Td lo más temprano posible durante el embarazo.

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ANNEX 19

PLAN TO STUDY RESISTANCE TO ACCEPTANCE OF TETANUS IMMUNIZATION

Ideas Preliminares para una Investigación de Resistencias y Motivaciones para Aceptar la TT

Parece que hay dos grupos principales que son poco motivados a buscar la inmunización TT o que rechazan la TT cuando es ofrecida: (1) algunas mujeres católicas o miembros de sectores fundamentales que han sido influenciados por fuentes ecleciásticas que dicen que la TT esteriliza a la mujer; y (2) mujeres indígenas que mantienen sus creencias tradicionales.

Resistencias Religiosas

Parece que se necesita una estrategia sútil para aumentar la aceptación de este grupo (religiosos). El objetivo sería que los líderes religiosos por lo menos no se opongan activamente a la vacunación.

Posiblemente sería útil invitar a los líderes religiosos a visitar un caso de tétanos neonatal en el hospital. Sería de gran ayuda, poder mostrar los carnets de muchas mujeres que recibieron TT y después tuvieron hijos.

En la inmunización escolar, se debe vacunar tanto a alumnos tanto como a alumnas. También se debe ofrecer TT a los hombres que la soliciten en las campañas de inmunización y en los mercados.

Resistencias Culturales

La estrategia para alcanzar a las mujeres indígenas debe utilizar varios medios de comunicación social, como visitas domiciliares, líderes o grupos locales, y tal vez la radio. Es esencial utilizar para este grupo mensajes efectivos que combatan las resistencias adicionales y que motiven a estas mujeres a actuar.

La mejor manera de diseñar estos mensajes es de utilizar la participación de las mismas mujeres en su formulación. Sería muy útil programar una investigación como parte del programa de reforzamiento de la inmunización TT. A continuación se dan algunas ideas para hacer una investigación rápida.

La metodología propuesta es de organizar 8 grupos de discusión focalizada (focus group discussions), cada uno con 8 a 10 participantes. Los grupos consistirian en 2 grupos de mujeres con 0 dósis, 2 grupos de mujeres con 1 dósis, 2 grupos con mujeres con 2 o más dósis, 1 grupo de padres (hombres), 1 grupo de mujeres jóvenes (13-16 años).

Se escogerían los participantes por ir de casa en casa en las áreas de la ciudad donde viven estas mujeres. Podríamos ofrecer un regalo pequeño o una merienda a los participantes.

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Las discusiones deben ser en un lugar donde las participantes se sientan cómodas, por ejemplo un centro comunal. Las discusiones deben durar entre una a dos horas y deben ser grabadas.

El papel del moderador es sumamente importante. En este caso debería ser una enfermera o una trabajadora social debido a su experiencia comunicativa. El moderador tiene que incentivar la participación de todos, realizando preguntas y clasificaciones sin influenciar lo que digan los participantes. El moderador debe asegurarse que los participantes discutan todos los tópicos, aunque no necesariamente en orden. Para que los participantes hablen libre y honestamente, el moderador puede usar la foto de una mujer del tipo que nos interesa y preguntar sobre ella en relación al TT. Por ejemplo, vamos a decir que el moderador muestra una foto de la Sra. Carmen y explica que ella llegó a Santa Cruz el año pasado de una área rural de Cochabamba. La discusión debe cubrir los siguientes tópicos:

1. La Sra. Carmen usará los servicios de Salud Pública de Santa Cruz? Por que? Como la tratara el personal de salud? Por que? Tiene ella confianza en ellos? Por que? Como es su experiencia personal con los servicios de salud?

2. La Sra. Carmen conoce la enfermedad llamada tétanos o espasmo de ombligo? Qué nombre prefiere darle ella a esta enfermedad? Qué sabe ella de esta enfermedad? Cuál es la causa? Qué pasa cuando uno tiene la enfermedad? Qué le afecta más? Es una enfermedad muy común? Es una enfermedad muy seria? Es posible prevenir la enfermedad? Como?

3. Ha sido vacunada la Sra. Carmen contra el tétanos? Si fué vacunada, por que? Cuantas veces? Cuantas veces cree ella que es necesario ser vacunada para tener protección para sí y sus bebes? Dónde fue vacunada la Sra. Carmen? Como fué la experiencia? Sí no ha sido vacunada, por que? Ella tiene miedo o piensa que la inmunización realmente previene el tétanos? Por que? La Sra. Carmen debe ir a vacunarse sí estuviera un poco enferma en el día señalado? Por que?

4. Dónde tuvo conocimiento la Sra. Carmen sobre la posibilidad de ser vacunada contra el tétanos? Su suegra apoyaría la idea de inmunización? Por que? Su marido? Por que? Qué consejo le dierón las vecinas, el médico, el padre o otro líder religioso? Qué dijerón? Qué dices sus amigos y familiares sobre la vacunación?