NEONATAL TETANUS ELIMINATION
ISSUES AND FUTURE DIRECTIONS

MEETING PROCEEDINGS

REACH/MotherCare

with the United States Agency for International Development

Alexandria, Virginia
January 9 - 11, 1990
Despite recent gains in child survival in the developing world, tetanus still kills an estimated 750,000 newborns every year. Most of these lives could be saved with a combination of tetanus toxoid vaccinations for girls and women and safe and hygienic delivery practices.

To strengthen the necessary linkages between the fields of immunization and maternal health, a meeting was held in Alexandria, Virginia, in January 1990. Planned by two A.I.D. Office of Health projects, REACH and MotherCare, the meeting assembled leading experts to review the major programmatic issues surrounding neonatal tetanus.

Widespread interest in the subject was evident during the meeting. As the proceedings indicate, participants actively explored both the obstacles and the opportunities for reducing neonatal tetanus mortality.

I trust you will find these proceedings of interest.

Ann Van Dusen, Ph.D.
Acting Director
Office of Health
Bureau for Science and Technology
Agency for International Development
ACKNOWLEDGEMENTS

The Meeting benefited from the commitment and hard work of many individuals who are here acknowledged:

Technical direction in planning the Meeting was provided by Dr. Pierre Claquin, Mr. Robert Steinglass, Dr. Marge Koblinsky, Mr. Robert Clay, Ms. Holly Fluty and Dr. Mary Ann Anderson. Ms. Marcia Sell and Ms. Sharon Rayball served as administrators before and during the Meeting. The Meeting rapporteur was Ms. Connie Keedle. Ms. Cynthia Dunn Rawn and Mr. Robert Steinglass edited the proceedings and Dr. Umit Kartoglu contributed original cartoons. Mr. Tom Leonhardt served as the facilitator for the Meeting.
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<td>DPT</td>
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<td>KAP</td>
<td>knowledge, attitudes and practices</td>
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<td>tetanus toxoid</td>
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EXECUTIVE SUMMARY

Tetanus of the newborn claims 750,000 lives each year. After measles, neonatal tetanus (NNT) kills more children than any other vaccine-preventable disease.

Babies contract tetanus at birth due to the unhygienic cutting or dressing of the umbilical cord. Fewer than 20% of deliveries in developing countries are supervised by trained attendants. NNT can be prevented by immunization with tetanus toxoid (TT) before the woman delivers and by clean delivery and post-delivery practices. Each case of NNT bears witness to multiple failures in health systems unable to attend to the needs of women.

Retrospective NNT mortality surveys conducted throughout Africa and Asia in the past decade have established that NNT typically is responsible for up to 50% of neonatal and 25% of infant mortality in developing countries. Yet policymakers have been frequently unaware of the magnitude and public health importance of NNT.

Neonatal tetanus has been a neglected disease of "peculiar quietness." It kills its victims one by one, rather than in mass epidemics. Health care providers see only a small fraction of the cases. Neonatal tetanus typically occurs among the illiterate and poor, who commonly believe it has a supernatural etiology and do not bring cases to the allopathic system. Disease surveillance systems detect or report few of the cases and frequently lump them together with cases of non-neonatal tetanus. Neonatal tetanus is the most under-reported lethal infection in the world.

Women are the target for TT immunization. Yet, despite the availability of an inexpensive, heat-stable and safe vaccine with near 100% efficacy after the correct number of doses, coverage of women with TT lags far behind infant immunization coverage with other vaccines in virtually every country. Immunization strategies often do not take advantage of the long window of opportunity to immunize women - any time before or during childbearing years. Tetanus toxoid is frequently not offered during routine child immunization sessions, during national immunization days, or at any contact between women and the health services. Even when offered, it is often provided only to pregnant women (sometimes only at specified months of pregnancy), rather than to all women of childbearing age.

The international health community has risen to the challenge of neonatal tetanus control. As part of its Child Survival initiative, the United States Agency for International Development (A.I.D.) in 1985 began to stress NNT control as a means of achieving a rapid reduction in infant mortality. In May 1989, the World Health Organization's (WHO) legislative body, the World Health Assembly, established a global goal of NNT elimination by 1995. The incidence of NNT is increasingly being viewed as a barometer of the health status and well-being of mothers and newborns.

In support of this NNT initiative, the Office of Health of A.I.D. sponsored a Meeting on Neonatal Tetanus Elimination: Issues and Future Directions in Alexandria, Virginia from 9 to 11 January, 1990. Organized by the REACH
(Resources for Child Health) and MotherCare Projects, the Meeting brought together international experts in immunization and in maternal and child health to discuss technical issues and control strategies. A major objective of the Meeting was to promote collaboration on NNT among agencies and organizations working in the field. In addition to A.I.D., REACH and MotherCare, key representatives of WHO, PAHO, UNICEF, the U.S. Centers for Disease Control, and other organizations and institutions participated in the Meeting.

Selected technical areas were discussed at the Meeting in order to:

- clarify methodological and technical issues in NNT control
- identify gaps in service and research
- document lessons learned
- disseminate information on current efforts and future plans
- identify areas for collaboration for NNT elimination.

A Vision for the World: Global Elimination of Neonatal Tetanus by the Year 1995, a plan of action endorsed at the WHO EPI Global Advisory Group Meeting in October 1989, served as the primary reference document for the Meeting.

Broad themes stressed at the Meeting are summarized below.

1. **Increased awareness is needed by health planners, providers, women and their families about prevention of neonatal tetanus.**

   - Ministry of Health officials, staff from health training institutes, and members of pediatric, obstetrical/gynecological and medical associations all need to be brought up to date on the many recent developments in NNT prevention. A broader coalition is needed in each country to reformulate and apply new national policies and delivery strategies.

   - Women and their families require information about the importance and safety of receiving TT immunization before or as early as possible during pregnancy for the health of their babies and for their own health. They need to know where and when immunization is offered.

   - Communication and social mobilization strategies aimed at both consumers and health care providers are required to overcome barriers to a change in behavior. Behavioral research and social marketing will be needed in many settings to transform providers into active supporters of NNT control.

2. **Within the EPI, equal emphasis must be given to TT immunization of women.**

   - Presently the predominant focus of the Expanded Program on Immunization is on infant immunization coverage, to the relative neglect of TT immunization. Reasons for missed opportunities for immunizing women with TT must be identified and corrected.
3. **EPI and MCH staff have a joint role in eliminating neonatal tetanus.**
   - Closer collaboration is needed at every level between staff engaged in maternal and child health care (MCH) and staff involved in the Expanded Program on Immunization.
   - Strategies to ensure clean intrapartum and postpartum care and to increase immunization coverage need to be formulated at each level of health services by staff familiar with local technical, operational and social factors.

4. **Girls and all women of childbearing age are the target for TT immunization.**
   - Programmatic shifts are needed in many settings towards immunizing all girls and women of childbearing age with a five dose schedule (with a special emphasis on pregnant women), and away from the traditional approach which exclusively targets pregnant women.

5. **Every service contact with women should be used to increase TT coverage.**
   - Simple surveys on missed opportunities for immunization will be useful to alert program managers to inefficiencies in service delivery.

6. **Improved indicators and records are needed to strengthen program monitoring.**
   - Improved indicators are required for monitoring TT activity, coverage and protection, as well as indicators for clean delivery and proper cord care.
   - A review of experiences using women's records and lifetime immunization cards would be instructive.
   - A shift from achieving targets to achieving disease control through improved surveillance is needed.

7. **Costing information can assist program managers to select control strategies.**
   - Costing guidelines need to be designed to help EPI and MCH managers select strategies and allocate resources for immunization and clean delivery.

The Meeting on Neonatal Tetanus Elimination: Issues and Future Directions stimulated individual and organizational resolve, and set a strong foundation for future collaborative efforts. The joint sponsorship of the Meeting by A.I.D. projects engaged in immunization services (REACH) and in maternal and neonatal health (MotherCare) served as an important example of the linkages which will be required. An immediate outcome of the Meeting was the realization that a forum for developing technical recommendations on NNT
elimination at the global level is needed. WHO now plans to establish an integrated EPI/MCH consultative group on NNT elimination to address some of the issues and themes identified by the Meeting.

This report documents the proceedings from the Meeting. Summaries of the technical presentations, results of working group sessions, and reviews of plenary discussions are included. Participants and agencies involved in the Meeting hope that these proceedings will stimulate the reader to advocate and implement improved neonatal tetanus elimination strategies.
The purpose of the Meeting on Neonatal Tetanus Elimination: Issues and Future Directions was to bring together key individuals and institutions involved in neonatal tetanus (NNT) to discuss technical issues and strategies for control of the disease. The discussions helped to identify current and future activities; positions and expectations of those involved; areas of commonality and differences; and gaps in services and research. The Meeting's purpose, objectives, and format are described in greater detail in Annex 1. The agenda is in Annex 2 and list of participants in Annex 3. Background materials appear in Annex 4.

Mr. Brad Langmaid, Acting Assistant Administrator (A.I.D./ST), welcomed the participants and urged them to look as broadly as possible at the issues involved in NNT elimination. This necessitates looking not only at the target population, but also examining the social setting in which NNT cases occur. While infant immunization coverage worldwide ranges from 60 to 70%, coverage with tetanus toxoid (TT) averages only 29%. There are successes in other areas of infant care, but the challenge of getting a woman to receive five shots of TT is formidable. Of the range of interventions to improve infant care, delivery of TT is probably one of the most crucial.

An evaluation of the Meeting is summarized in Annex 5.

Keynote Address

The Challenge to Eliminate Neonatal Tetanus, Dr. Robert Kim-Farley, WHO/Geneva

As the decade of the 1990s begins, the Expanded Program on Immunization (EPI) has achieved a remarkable success. For the first time in history, immunization coverage for the world has surpassed the two-thirds mark for a third dose of polio or DPT vaccines for children reaching their first birthday. However, the lowest coverage rates continue to be documented for tetanus toxoid among pregnant women. In developing countries only 29% are reported as having received two or more doses. Technical problems remain in accurately determining this coverage rate linked with different target groups for TT immunization in various countries. Coverage rates underestimate actual tetanus protection, as doses of TT administered before the most recent pregnancy have not generally been considered in assessing immune status. Nevertheless, it is equally certain that TT coverage remains far too low. Neonatal tetanus alone is responsible for an estimated 750,000 deaths annually.

In May 1989, the Forty-second World Health Assembly set the agenda for the EPI for the 1990s in Resolution WHA42.32. One of the major challenges to be addressed during the decade was the elimination of NNT by 1995. Historically, the Neonatal Tetanus Initiative has arisen out of an increasing awareness of the magnitude of NNT as a major cause of infant mortality. A global consensus on a target for NNT elimination by 1995 has emerged from both within and outside of WHO.
Important features of the NNT elimination initiative that are appropriate to consider include: rationale behind setting a 1995 target; shift to a greater emphasis on disease impact in the EPI; integration of the NNT Initiative within the overall EPI; and integration of the NNT Initiative within MCH and PHC.

Some of the challenges that remain in achieving and sustaining NNT elimination include:

- implementation of the strategies in the Plan of Action for Global Elimination of NNT;

- mobilization of political will to generate the necessary financial and human resources required to put the global strategies into action;

- and development of a consensus on MCH and EPI indicators to monitor progress towards achieving NNT elimination and which can be used to direct program resources to areas of greatest need.

The timing for this Meeting is right; the mix of agencies, organizations and individuals is appropriate; and the need for action to achieve NNT elimination in the next five years is pressing. If participants leave this Meeting with a commitment to work in a collaborative manner to implement strategies of the Plan of Action for Global Elimination of NNT, we will have moved one step closer to making the vision of a world free of NNT a reality.

* * *
TECHNICAL SESSIONS

1. A Look at the Neonatal Tetanus Initiative

Panel Discussion

Neonatal Tetanus and its Control, Dr. Arthur Galazka, (WHO/Geneva)

Two key questions were examined. First, what is the real magnitude of NNT? And, secondly, what are the factors affecting NNT and the immunological bases for its control? Neonatal tetanus has been overlooked by the health services in many developing countries. In the last decade the extent and magnitude of NNT have become clearer, and it has been shown to be an important cause of avoidable morbidity and mortality in the neonatal period.

NNT still represents about half of neonatal deaths and about 25% of infant mortality in developing countries. After measles, NNT is the second leading cause of death due to the EPI target diseases. The annual worldwide occurrence of 787,000 deaths due to NNT (with only 356,000 deaths prevented by immunization) constitutes the most urgent challenge for all involved in neonatal health in developing countries. Routine surveillance of NNT is still weak and completeness of surveillance data in many countries is less than 10%. NNT is still not a reportable disease in many countries.

NNT mortality surveys provide important and valuable data on neonatal mortality. Their results have contributed considerably to our understanding of the magnitude of NNT. Results of surveys performed in almost 40 countries were presented. (See Table 1) The highest NNT mortality rate cited was for Uttar Pradesh, India where 67/1000 (7%) of live births die of NNT.

Factors affecting the risk of NNT infection include environmental exposure to tetanus organisms, place of delivery, type of birth attendants, cord care practices and immunization status of the mother. Data were presented on the age at onset and death, sex, geographic distribution, seasonality, and immunization status of mothers. Generally, with shorter incubation times there is higher mortality, with deaths peaking at 6-8 days.

More males than females are reported to contract NNT. This could be a reporting artifact, resulting from greater value being placed on males than females, rather than a true reflection of incidence. Other possible explanations are that more ingredients may be put on males' cords, or that mothers can better remember male deaths. NNT occurs more often in rural areas and data from sentinel systems indicate that it accounts for 60-70% of all cases of tetanus. Examples of countries where TT immunization has been shown to have an impact - Sri Lanka, Cameroon, Indonesia, and Brazil - were also presented.

Issues involved in the immune response to TT were presented. Since the nature of tetanus immunity is antibody-mediated, determination of antibody levels provides important information on immune status. The most specific method of
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<th>Country</th>
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<td>Burma</td>
<td>1985</td>
<td>6,000</td>
<td>18</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Bangladesh</td>
<td>1986</td>
<td>2,077</td>
<td>82</td>
<td>41</td>
</tr>
<tr>
<td>Western Pacific</td>
<td>Philippines</td>
<td>1982</td>
<td>8,754</td>
<td>13</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Viet Nam</td>
<td>1985</td>
<td>8,270</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Lao P.D. Rep.</td>
<td>1985</td>
<td>4,996</td>
<td>16</td>
<td>4</td>
</tr>
</tbody>
</table>

Source: Issues in Neonatal Tetanus Control, WHO (EPI/GAG/87/WP.11)
Determining tetanus immunity—the neutralization test in vivo—is expensive, time consuming, and requires a large number of animals. In vitro techniques, including passive hemagglutination, ELISA, and radioimmunoassay, are simple, sensitive, and rapid; however, they are less specific than the neutralization test. Their results are often misused by assuming that the level of 0.01 IU/ml as determined by hemagglutination or ELISA is equivalent to the same level of antitoxin in the neutralization method. The latter value is somewhat arbitrarily considered as the minimal "protective" level.

Women who have been immunized and achieved the desired levels of TT antibodies give their yet to be born daughters the first step of protection for both themselves and their future generation.

Source: Dr. Umit Kartoglu, Public Health Specialist, Turkey

Serological methods should not be used for routine monitoring. However, they may play an important role in answering specific questions about effectiveness of immunization with TT. The current 5-dose TT schedule is shown below:

<table>
<thead>
<tr>
<th>Dose</th>
<th>When to give TT</th>
<th>% Protected</th>
<th>Duration of Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT-1</td>
<td>At first contact or as early as possible in pregnancy</td>
<td>Nil</td>
<td>None</td>
</tr>
<tr>
<td>TT-2</td>
<td>At least four weeks after TT-1</td>
<td>80</td>
<td>3 years</td>
</tr>
<tr>
<td>TT-3</td>
<td>At least 6 months after TT-2 or during subsequent pregnancy</td>
<td>95</td>
<td>5 years</td>
</tr>
<tr>
<td>TT-4</td>
<td>At least one year after TT-3 or during subsequent pregnancy</td>
<td>99</td>
<td>10 years</td>
</tr>
<tr>
<td>TT-5</td>
<td>At least one year after TT-4 or during subsequent pregnancy</td>
<td>99</td>
<td>throughout childbearing years</td>
</tr>
</tbody>
</table>
The pattern of immune response following subsequent doses and immunological basis for the 5-dose schedule was also presented. Modified ELISA techniques have been developed: a toxin binding inhibition test (TOBI) at the Rijk Institute in the Netherlands and the antigen competition ELISA at the State Serum Institute in Denmark.

WHO's Vision of NNT Elimination, Dr. François Gasse (WHO/Geneva)

A major objective for NNT elimination is to set priorities. Three strategies for NNT elimination are: 1) TT immunization, 2) clean deliveries, and 3) NNT surveillance. Supporting activities include social mobilization and planning activities.

The goal of neonatal tetanus elimination will be pursued in ways which strengthen EPI as a whole, fostering development of maternal and child health programs and primary health care. The global plan of action for NNT elimination expresses the need to increase rapidly TT immunization coverage and the proportion of deliveries respecting the "three cleans" (clean hands, clean delivery surface, and clean cut). The plan emphasizes the following actions:

- Organizing integrated training/planning workshops at national and district level;
- Adopting a "risk approach" to designate high priority geographic or socioeconomic areas for elimination activities;
- Administering a protective course of tetanus toxoid to all women of childbearing age as early as possible and ideally before their first pregnancy;
- Reducing or eliminating the number of "missed opportunities" for immunization by offering TT to mothers when children are immunized;
- Providing a life-long immunization card or other record for all TT recipients;
- Reporting NNT cases by month and by district in addition to measles and poliomyelitis cases;
- Making greater use of all antenatal visits, including those during the first trimester of pregnancy, to administer TT vaccine, identify women at risk for complications from delivery and deliver a cord care kit to those women who will not deliver at a health facility; and
- Adopting NNT incidence rates as health indicators supplemental to infant and maternal mortality rates.

The WHO goal is to eliminate NNT by 1995. At present, the highest immunization coverage rates are in the South-East Asia Region. Other specific
successes were cited for Maputo, Mozambique, which achieved 85% coverage with
two doses of TT, and Pidie District in Indonesia which lowered its NNT
mortality rate from 32.1 to 4.9 per 1000 live births.

"Don't forget, my mum needs a TT injection too!"


What Difference Will NNT Elimination Make in Infant and Under-5 Mortality?,
Dr. Susan Zimicki (Annenberg School for Communication/Philadelphia)

The question is two-fold: First, what proportion of infant and child deaths
are attributable to NNT? And, secondly, will the means used to achieve NNT
elimination affect other causes of infant and child death?

Two factors affect the proportion of infant and child deaths attributable to
NNT: the percentage of all neonatal deaths caused by NNT and the proportion
of all infant and child deaths that occur in the first month. The proportion
of neonatal deaths caused by NNT is 20-40%; however, this is not absolute. In
the absence of TT immunization, NNT mortality rates vary greatly, both by
geographic area and by other factors such as urbanization and socioeconomic
status (SES). Reasons for some of these differentials are clear - such as the
difference in the proportion of births that take place in health facilities
and exposure to animals - but much of the variance is probably related to
particular (and undocumented) birth practices. Some variance, of course, may
also be due to reporting bias.

There is no absolute relationship between the proportion of deaths due to NNT
and the level of neonatal mortality, although when NNT mortality is high, so
is neonatal mortality. The proportion of infant mortality occurring in the first month of life by region is: South Asia, 60%; East Africa, 30-40%; West Africa, 30-45%; and Latin America, 20-30%.

A simple estimate of the reduction in infant mortality that would be achieved through elimination of NNT cannot be produced, though range estimates are possible. Estimates vary by region: Africa, 12-20%; South Asia, 30-40%; Eastern Mediterranean, 6-12%; South-East Asia, 9-16%; Latin America, 1-3%; and up to 20% for the global average.

The absolute amount of reduction in mortality is not the only or most important criterion for determining the importance of carrying out an intervention. Tetanus not only ranks high among causes of neonatal mortality, but it is the single cause most amenable to simple intervention.

However, the technological simplicity of the intervention does not mean that it will be easy to accomplish. Studies need to focus not only on the results of TT intervention, but also on factors that will affect the success of the intervention, such as women's and health workers' attitudes toward injections during pregnancy. Only with this knowledge can NNT be eliminated and the maximum reduction in mortality be achieved.

Plenary Discussion

Q: Does the research indicate when signs of tetanus first appear as related to mortality?

A: A lot of clinical data exist, especially from India in the 1960s. The International Conference on NNT in Bombay in 1970 presented this research in one full clinical session. Earlier onset of symptoms is associated with higher mortality.

Q: If someone survives NNT, is there an increased risk of dying from other causes?

A: Some evidence suggests that if you prevent infants from dying of NNT, they are not at excess risk of dying from other causes.

Q: Are the data given for NNT mortality based on national figures or on area surveys? If they are based on small areas, they tend to be biased. In these surveys, NNT rates seem to be accurate, but neonatal mortality rates are much too low, lower than other surveys. In other words, neonatal mortality is underestimated by surveys, but NNT is stressed. Might this lead to an exaggeration of NNT?

A: WHO EPI has concluded that 40% of neonatal mortality is due to NNT. This is based not only on NNT mortality surveys but also on more detailed studies.
Q: A common misconception is that the target group for TT is pregnant women. WHO's policy is that all women of childbearing age, whether or not pregnant, need to be protected.

Q: There is concern about the period of recall on NNT mortality surveys. For example, in the Ivory Coast when the data were analyzed by six-month periods of recall, neonatal and NNT mortality rates were significantly higher in the most recent six-month period before the survey than in the preceding two six-month periods.

A: Overestimation of NNT may be more of a problem. One source of overestimation is that in marginal cases, a case is more likely to be called NNT. In the respondent's (Dr. Zimicki's) experience, bias was not found in the recall period.


Implementation issues and concerns regarding the goal of NNT elimination were identified by working groups. A plan of action endorsed at the WHO EPI Global Advisory Group Meeting in 1989, A Vision for the World: Global Elimination of Neonatal Tetanus by the Year 1995, served as the reference document.

Policies and strategies, communications, resources and linkages, and recordkeeping were identified as the main issues. The diverse, and occasionally divergent, opinions of the working groups on these issues are summarized below.

Policies and Strategies

- In some areas, policymakers have not yet realized that NNT is a major cause of vaccine-preventable mortality. In some countries, deaths from NNT actually exceed those from measles.

- Elimination plans should be elaborated by nationals who are familiar with the social, technical and operational realities of their countries. Each country needs to formulate its own strategy to deal with its NNT problem, and appropriate indicators are necessary.

- Global recommendations may not always be applicable given the diversity that exists among countries and regions. A shift in immunization target group from pregnant women to all women of childbearing age may not be appropriate in all situations.

- Missed opportunities for immunization need to be assessed. All women should be targeted for immunization. Women can be immunized during child immunization sessions, at antenatal clinics, and during curative care.
A short-term target for elimination by 1995 may lead to "missed strategies for immunization," such as failure to protect young schoolchildren today because they will not be giving birth by 1995.

If all women of childbearing age and schoolgirls must be immunized, the elimination goals will not be met by 1995.

All strategies should be considered, not just immunization. Assuring clean deliveries requires increased emphasis.

Communications

- Service providers need to be informed. They frequently do not appreciate the importance of NNT and need for TT, and are unaware of national policies and strategies to be followed. Some health staff and clients erroneously believe that TT immunizations should not be given anytime during pregnancy or during specified months of pregnancy.

- Service providers, including TBAs, need to increase their knowledge about clean delivery. TBAs also need to be supervised.

- The priority focus of behavioral research should be health care providers, since their behavior is responsible for many missed opportunities for immunization.

- The need for culture-specific communications to cope with the diversity between and within countries is not widely recognized.

- A communication strategy must address the implications for health staff and families of expanding target groups for immunization. All decision-makers within families need appropriate messages, including women themselves, mothers-in-law, husbands and other men.

- Target groups are confusing in terms of mother vs. child: the mother is the target to prevent disease in the child. Women should understand that they need immunization for their own sake, as well as for their newborns.

Resources and Linkages

- Improved linkages are needed at all levels between staff responsible for MCH care and immunization services. Coverage with TT should be considered an indicator for the quality of MCH services.

- Additional resources will need to be identified and allocated to the NNT elimination goal at global and national levels. Expanding the target group for immunization to all women of childbearing age may increase short-term logistical requirements, particularly for vaccine, syringes and needles.
- Cost information could help program managers to select appropriate strategies and allocate resources.

- Appropriate forums are needed to continue the dialogue which began at this Meeting on technical and collaborative issues.

Record-Keeping

- Keeping immunization records on individuals who remain eligible for TT for a very long time is difficult. Mobility of patients and loss of records is a problem. Several types of facility-based and home-based records are kept and this causes confusion.

- Functioning systems of recording and reporting TT by dose administered need to be designed in some areas.

- Long-lasting home-based records are required. The relative advantages of recording TT immunizations on TT cards or on women's health cards should be determined in each country.

* * *

3. NNT Prevention: The Client and Her Needs

Introduction -- Meeting Women Half-Way: Rethinking our Tetanus Toxoid Immunization Strategies, Dr. Pierre Claquin (REACH/Arlington)

Too often in the past, and still now, policy makers and global health planners have talked on behalf of TT clients and maybe at their expense. These advocates have sometimes been articulate and have had the best of intentions. Nevertheless, who the planners are - biomedical technocrats, westerners and males - has shaped our disease-control strategies along ideological lines which have definite implications for the people we claim to serve.

It is time to reassess in a different light some of the premises upon which our practice is based and take into account the realities of daily life of women in countries where we work. The rationale for a new approach is neither an idealistic or romantic view of the relationship between North and South nor lip service tribute to a growing fad calling for a social science approach to international health programs. It is rather a realistic, practical, down-to-earth realization that until and unless our tetanus elimination programs become client-oriented, progress in vaccination coverage will soon become painfully slow and program sustainability will escape us.

Several of our disease-control programs, rightly and wrongly, are powerfully shaped by the unspoken smallpox eradication paradigm and by military metaphors. NNT elimination is probably an example where such references will not be operative or relevant because of specific mechanisms of tetanus
transmission. And because of the multi-faceted socioeconomic and cultural realities of Third World women, our NNT elimination programs must be examples of multi-pronged creative initiatives in reaching out.

Who are the clients of our NNT prevention programs? There is no single answer, and this is why time will be spent during the session to explore this question in three different cultural contexts. The clients do, however, have some common denominators: They are women living in a world still largely dominated by men, who act as their "guardians," as the interface, the bridge between them and the outside world. To quote an Indian woman, "we see the sky like frogs in a well." They are human beings, overburdened and often overwhelmed by their role as producers and reproducers. In a given country, women of childbearing age are not part of an amorphous, anonymous, nondescript mass, but belong to different universes for which different approaches must be used. Last but not least, in the majority of cases, our clients are articulate about their needs and conditions for their participation. Unfortunately, too often, we either do not listen or do not hear.

The long-term goal is to see behavioral changes take place; however, all of us here are in a hurry. In practical terms and in order to both increase coverage and institutionalize our NNT elimination programs, we are immediately faced with the challenge of two types of situations:

- Women who are already users or have been users of health services. The key challenge facing us is to improve the effectiveness and quality of immunization services by making them comfortable and congenial. The importance of developing a sociology of the health staff needs to be stressed. Health staff are the great neglected target group of our programs and a significant obstacle to improvement, although they are probably victims of the system themselves. Nevertheless, too often health staff are alienated from the general population and do not communicate well with it. This is not to suggest staff training but rather KAP, anthropological or sociological studies of the behavior of health staff: What do they believe about vaccinations and contraindications? What role models do they have? What incentives do they have to do a good job? What are their own immunization records, both individually and in their families? How do we expect to improve our programs without honing our delivery tool? Knowing our staff and the reality of their lives is an essential step in making our services more congenial and efficient.

- Women who are presently not reached by health services, whether public or private. Here, the first step is to be aware of their existence and their numbers, since they are often "forgotten people": migrants, slum dwellers, or "tribals." For the second step, social sciences can come to the rescue in identifying conditions for participation of such groups. This does not mean that studies are a precondition for action; rather, that knowing intimately the concrete realities of the women's lives in each of the sub-groups which we plan to immunize should significantly help us to reach them faster and better. As Napoleon's minister Talleyrand used to say, "Doucement, doucement, je suis presse!" (Go slowly, I am in a hurry!) Our role is not only to understand the world but also to change it.
Small Group Discussion and Presentation

Three small groups (one each for the Latin America/Caribbean, Africa, and Asia/Near East regions) were formed. Each examined a regional case study. Groups were asked to consider the unique aspects and cultural needs of both clients and practitioners in their respective regions. Then, they were to discuss strategies and approaches for services and communication that have been successful.

Latin America/Caribbean Group: Rapporteur, Mr. Robert Clay (A.I.D./Washington)

The profile of a Latin American woman prepared by Dr. Joseph Bastien portrayed a client with much misinformation about NNT and its prevention. For both clients and health workers, KAP studies can provide useful insights. Communication channels and their use, both public and private, need to be examined. Ways to offer access to correct information and to encourage utilization of services must be found. Communication through multiple channels with consistent, simple, and actionable messages would be helpful.

Communication must respect cultural belief systems. For example, we need to identify things in their society, their cultural world, which occur in multiples of five to help them accept and remember the five-dose schedule. An example of a success of this kind is Dr. Berggren's work in Haiti. At the time, a three-dose schedule was being implemented. Haitians were reminded of the three rocks needed for a cooking pot to rest on a fire as a comparison for the three injections needed for complete immunization. Another reason why control strategies in one area of Haiti were a success was that case investigations were used as a vehicle to spread the word that NNT was preventable.

The timing of immunizations is also important. For example, an immunization clinic held during harvest season would certainly not be fully utilized. Community leaders, church groups, women's groups, TBAs, and schools can be used to "spread the word." A reward system - such as the presentation of certificates to those who receive all five doses - can be tried. Feedback to the community and to health workers to show them the positive results of their efforts is an essential communication strategy.

Africa Group: Rapporteur, Dr. Stanley O. Foster, (CDC/Atlanta)

A profile of a West African yam seller, prepared by Ms. Deborah Armbruster, led to a look at the role of the TBA, how health facilities worked and did not work, and the role of national health services in caring for the client. Cultural influences must be appreciated. For example, the yam seller believed in black magic and kept her head covered. She stayed away from "harm," avoiding eggs and pork. She feared injections and was illiterate. The TBA who would deliver her child was probably untrained and would use herbs and a
"white powder" on the umbilical stump of the child. Perhaps an infusion would be given to the mother.

Mothers, TBAs, health staff and the community need information. The TBA needs to learn about hand-washing and be given a cord kit. Cleanliness must be taught to both the mother and TBA. Integration between the TBA and health facility must take place, with health staff making an effort to understand and respect the TBA. Supervision is needed. A training strategy must be put into practice; this would call for both community and national participation.

Asia/Near East Group: Rapporteur, Dr. Marjorie Koblinsky (MotherCare/Arlington)

Dr. Therese Blanchet’s profile on NNT in Bangladesh made clear that there is no typical client in this region. Variations exist within and between countries in terms of quality of care and motivation of clients. Health planners and providers must acknowledge the interplay between services and demand: often poor quality of care can dampen motivation of clients. Strategies are needed to build demand and to foster flexibility in service delivery. Knowledge does not equal motivation.

Different strategies may be implemented as determined by the MCH infrastructure. For example, the degree and nature of community involvement and networks are factors to be considered in developing an appropriate strategy for immunization.

Lessons can be learned from other programs (e.g., family planning programs), and these lessons may not come solely from looking at successes. In the Philippines, TT immunization was successfully introduced into a growth monitoring program. TT immunization was required for prospective brides in Indonesia and increased coverage. Also in Indonesia, the implementation of mass campaigns increased TT coverage.

Ideas for future strategies include making TT acceptance the norm (including men in educational efforts), emphasizing the chain of clients (including planners, program managers, health workers, families, and women as part of this chain), and developing a variety of approaches where barriers to immunization would be determined or reasons for drop-out would be examined.

Plenary Discussion

Common elements of the three case studies emphasized the need to:

- Address the knowledge, attitudes, and practices of each of the links in the chain of providers and clients;
- Recognize that in each region diversities exist;
- Strengthen cross-cultural communication skills and understand the belief system of the client;
- Stress rapid assessment procedures with a client-oriented approach which is culturally sensitive;

- Examine expectations and needs of clients and health staff. In reality, what clients want may be quite different from what health services offer.

* * *

4. Building Consensus on Issues in NNT Elimination

Plenary Sessions

Cost Effectiveness of Elimination Strategies, Dr. Gerard Foulon (Consultant)

The sustainability of national action plans to control NNT rely upon the capacity of EPI managers to mobilize the resources needed. Action plans include TT immunization strategies, clean deliveries, and monitoring of TT coverage and NNT morbidity and mortality. Some of the activities to increase TT immunization include changing the target group from pregnant women to all women of childbearing age, reducing missed opportunities, and increasing the number of immunization sessions (e.g., holding sessions every day).

The main activities to improve monitoring of TT coverage and NNT morbidity and mortality are: promotion of a new, or home-based, record for TT; modification and promotion of new routine reporting forms for TT and NNT; initiation of mortality surveys; and implementation of sentinel surveillance systems.

Costing analysis of accelerating TT delivery reveals that:

- Supplementary costs for TT immunization are mainly due to variable costs. These include those assumed by donor agencies (vaccines and other supplies) and those assumed exclusively by the countries themselves (fuel, per diem);

- Fixed costs (salaries, cold chain, and sterilization) will not increase because current EPIs can, with few exceptions, absorb most of them; and

- Resources needed to improve monitoring of TT coverage and morbidity depend on local conditions, including the size of the population and quality of current EPI monitoring.

When the TT target group is expanded to include all women of childbearing age, there is an initial cost increase. Once the backlog is immunized, there should theoretically be a reduction in costs to maintain protective levels. The quantity and the quality of information for costing are very poor. Finally, the economic aspects of TT immunization programs are not only
financial; it is possible to increase productivity through more efficient human resource management.

Complementary Strategies to Immunization to Eliminate Tetanus, Dr. Richard Guidotti (WHO/Geneva)

In addition to immunization strategies, the MCH Unit of WHO supports the training of TBAs, the use of a mother’s home-based record and a simple cord care kit. A guide for training TBAs has been written. It consists of three major sections. The first covers what TBAs should be taught, the second is a flip chart used during training sessions, and the third covers the training of trainers and explains how to adopt concepts for local needs.

A prototype for a home-based mother’s record has been produced to help national programs create their own country card. The MCH Unit has sponsored workshops to discuss country needs regarding the formulation of home-based maternal records. It advocates the use of these cards to encourage women to seek specific health services and to put vital health information into the hands of the client. This home-based mother’s record is less likely to be lost than a facility-based record. In addition, those who have this record have actually been shown to demand services.

Introduction of a simple community-based delivery kit, assembled from local materials and distributed by women’s groups, is advocated as a means to achieve clean delivery. The kit should remain in the mother’s home. Explanations on its use are provided by health care workers, and reinforced with simply-drawn illustrations. In Egypt, Girl Scouts have been interested in making these kits as a project and distributing them to pregnant women.

Guidelines for Introducing Simple Delivery Kits at the Community Level and Prototype Home-based Mother’s Record: Guidelines for Use are relevant references available from WHO.

Role of Surveys, Mr. George Stroh (CDC/Atlanta)

Use of sample surveys and other methods of data collection were reviewed in light of the need to document progress in NNT elimination. EPI-type cluster surveys have been used to monitor and assess NNT mortality, risk factors for NNT, and TT immunization status. Limitations of cluster surveys to assess NNT incidence and mortality need to be recognized. Use of alternative data sources and methods of data collection and analysis is also worth further study and development in the context of NNT elimination.

Potential changes to the "standard" EPI coverage survey methodology include:

- Adding questions relevant to NNT risk factors for pregnant women (e.g., indicators for "clean births");
- Including women of childbearing age (using a sub-sampling methodology) with possible use of different age ranges;
- Adding variables from all households in clusters to allow appropriate weighing and survey validity checks (e.g., household size, etc.);
- Recognizing that although the "standard" sample size may still be appropriate for TT coverage, there are difficulties in meaningfully interpreting the results as coverage improves to over 90% (given the +/- 10% absolute precision which results from the standard survey design);
- Recognizing that the exceptional value of the "standard" method has been its simplicity and that modifications need to be kept simple and understandable; and
- Making appropriate revisions of current computer software or developing new software to simplify analysis of data, whenever changes are made in survey methodology.

Issues cited that are relevant to surveys for NNT mortality and risk factors include:

- Many surveys are more costly than the value of information to be collected (this is the case for many "baseline" surveys); often information adequate for action is readily available from other sources.
- If surveys are done, consideration should be given to determining the number of clusters based on practical logistical considerations (for example, completing a cluster per day). Also, a set number of households could make up a standard cluster rather than a set number of events (e.g., births).
- As NNT incidence is reduced, sample sizes to assess progress become much larger and alternatives to broad scale surveys should be considered. One such alternative is to survey the highest risk populations. Software for the analysis of such surveys might be worth development, so that variance and precision estimates can be made.

Alternatives to cluster-sample surveys that might be worth study include:

- Sampling, review and analysis of facility records to determine NNT mortality rates;
- Use of community-based records - such as vital events registers and community health workers' records - where they are available or can be developed;
- If the two preceding alternatives are feasible, guidelines for their use by national programs would need to be developed;
- Quality assurance sampling can be used to monitor various indicators using community and/or facility records;
- Combine cluster sampling and quality assurance sampling for community-based surveys of rare events; and

- If case investigations of NNT are routinely conducted, the possibility exists of obtaining sufficiently large numbers of NNT deaths to initiate case-control studies as an alternative to special studies.

Plenary Discussion

A short review of the types of data collected in Demographic and Health Surveys (DHS) was presented, and a list of countries in which they have been conducted was distributed. This resource should be considered where broad scale surveys with large sample sizes are being planned, as some critical data relevant to NNT elimination may already have been collected by DHS. Also, future DHS surveys might be modified to collect other needed information.

Questions and issues raised regarding the presentations on cost effectiveness, complementary strategies and surveys included:

Q: What is a "clean" delivery?
A: One where the "three cleans" - clean hands, clean perineum, and clean cord - are respected.

Q: What indicators does the WHO MCH Unit use to measure population-based progress?
A: Indicators have never been employed in the field.

Q: What has been done to keep mothers from getting confused about immunization cards?
A: Nothing has yet been done.

Q: In which countries or regions has the WHO MCH Unit monitored progress on clean deliveries?
A: In South-East Asia and South America.

Q: Does the MCH Unit work with any other traditional practitioners?
A: It has focused on TBAs. However, at WHO there is also a traditional medicine unit.

Q: It was noted that surveys such as the DHS are done frequently; opportunities for collaboration with other organizations need to be identified so as to ensure the use of such surveys for collecting data on NNT.

Q: What criteria will be used to document the absence of NNT?
What needs to be recognized is that the tetanus organism is not a disease; it is ubiquitous in our environment.

5. Surveillance, Monitoring, and Indicators

Small Group Discussion and Presentation

For this session, participants were asked to choose one of six small groups in which a brief presentation was to be made on a topic regarding surveillance, monitoring, and indicators. Each small group was led by the presenter, and two to three priority issues were chosen. For each issue, implications for the clients, service providers, and program managers were noted. Each group reported back to the plenary session.

Monitoring TT Coverage and Activity Using Service Statistics, Mr. Robert Steinglass (EXACH/Arlington)

TT should be reported by dose (TT1, 2, 3, 4, 5) and target group (pregnant women, other women of childbearing age, schoolchildren, other). On all coverage tables, current column headings "TT2" and "TT2 for pregnant women" should instead be labelled "TT2 or more*", with * equal to "TT2, 3, 4, 5." Pregnant women and women of childbearing age should be presented in separate columns. In calculating drop-out rate, counter the prevailing 2-dose mentality by using (TT1-TT3)/TT1 x 100. "TT coverage" in any given period is not the same as, but is commonly confused with, "protection."

The problem of determining simple but valid "coverage rates" based on routine service statistics in order to monitor TT "protection" may be unsolvable. 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 vaccinations given in past years which are still protective.

Service statistics are valid indicators only of level of vaccination "uptake" (i.e., coverage in a given time period). Because "coverage rates" based on a single year's "uptake" are invariably misinterpreted to signify "protection," it may be better to monitor only absolute numbers of TT immunizations by dose and target group. Absolute figures, (i.e., numerators only) demand interpretation. Rates, on the other hand, presume to possess a level of validity which they lack in the case of TT "coverage."

Levels of TT uptake clearly need to be raised in order to increase maternal protection. However, expectations of a step-wise increase each year in "coverage," as it is currently measured, and reliance on service statistics to demonstrate it, is not a reasonable, achievable or necessary goal. Such
expectations implicitly assume that women of childbearing age require TT in each year and pregnant women in each pregnancy.

Inappropriate interpretation of current "coverage" indicators can demoralize program managers and service providers who are unable to reach their annual step-wise coverage targets. Use of inappropriate indicators may also interfere with the adoption or serious implementation of a five-dose TT strategy aimed at all women of childbearing age, since managers are afraid of a denominator that is suddenly five times larger (typically 20% vs. 4% of the population).

Finally, this group discussed the need for a lifetime record. While program managers would be responsible for designing and producing the record, providers would need to record the information (entering all doses) and consolidate them. Clients would be responsible for keeping the record over a very long period of time.

**Personal Home-Based Records, Dr. François Gasse (WHO/Geneva)**

A durable, lifelong home-based record was proposed to record all doses of TT administered to reduce missed opportunities for immunization, monitor TT coverage, and eliminate the administration of too many doses of TT. Such a record would contain at least the following information: name, address, and dates of doses of TT administered up to five.

This card should be available at any time a woman visits a health facility. When the woman is screened by health staff, her immunization status should be updated if necessary.

Managers and providers must decide whether a separate card for recording TT doses or an integrated health care card is preferable. For the client, one integrated card is easier to keep track of. For the provider, however, a separate TT card is easier. Program managers have the dilemma of deciding which to use.

Additionally, the issues of card retention and card usage must be considered. Clients value a long-lasting card (perhaps made in a fashion similar to a plastic "credit card"); using it, however, requires discipline. For providers and program managers, this may be one more "hassle" they would be required to deal with, involving training and supervision on the part of the manager, and screening and education on the part of the provider.

Another issue concerns the link between recording child and adult immunizations, which needs to be strengthened. More accurate records must be maintained. While the client is concerned with getting the correct number of doses, service providers would need to increase quality of care for all women and children. For their part, program managers are concerned about accurate monitoring. Strengthening of the link between child and adult immunization records would require much effort on the part of the service provider and program manager. Finally, a link between records would give the client better
quality of care and the service provider would be able to reduce missed opportunities. However, for the program manager, it may be impossible to organize.

The cost of a home-based personal record is also a concern. WHO has established a maximum cost for this card to be $.20 when millions are printed. While EPI is promoting a TT protection card, they are not promoting it over the "Road-to-Health" card.

Role of Sentinel Surveillance in NNT Elimination, Dr. Stanley O. Foster (CDC/Atlanta)

The goal of immunization is prevention of disease. Measurement of disease incidence is an essential component of program monitoring and management. Therefore, regular reporting from all health facilities needs to be a part of all national plans. In areas where national reporting is not functional, sentinel surveillance for NNT can provide useful data.

In terms of NNT elimination, it is important to recognize that sentinel surveillance can meet some, but not all, information needs. Sentinel surveillance data have many uses, including identification of trends over time; identification of high risk individuals, risk factors and missed opportunities; estimation of vaccine efficacy; and in-depth home KAP interviews and home follow-up. Sentinel data is not useful for determining overall levels of disease incidence, determining vaccine coverage rates, or certifying elimination.

Sentinel surveillance is very important for program managers. Through surveillance of morbidity and mortality, program managers can determine the effectiveness of present coverage. Increased use of sentinel sites should be a priority. In areas where there is low coverage, disease trends, risk factors, and missed opportunities may be examined. In areas where there is high coverage, vaccine efficacy may be examined. Program managers will be concerned with meeting objectives for coverage and morbidity/mortality reduction. Service providers must be concerned with training workers, and the emphasis for clients would be on avoiding missed opportunities.

Additionally, sentinel sites collecting and using local data for action can become foci for training. Modifications in the concept of sentinel sites may also be developed. Several sites may be monitored using one "sentinel person." In addition, this person may conveniently perform other EPI surveillance as well. An alternative complement to sentinel surveillance may be the use of community-based data.
TBAs may be very diverse in their traditional tasks. They are not always "allowed" to assist mothers except at the moment of delivery. They are often elderly, illiterate, and not yet accepted by the health care system. It is therefore necessary to assess the role of TBAs and document their practices.

Identification of TBAs for recruitment and training is not necessarily best done by "leaders" - who will make political choices - but by looking for information on who delivers most babies. This can be done by registering births by name of attendant; through rapid assessment sessions (e.g., focus groups in which mothers identify who performed their last delivery); and by rapid surveys, including questioning women about who delivered their last baby.

Linkage of TBAs to the professional health care system is essential. This linkage must be preceded by a careful study of TBA practices, and by a sharing
session between service providers and TBAs to promote mutual respect. Linkage would also address continuity of care, a client concern.

There are many factors to consider when training TBAs. The training must be close to grass roots, and it should be done by those who are responsible for supervising the TBAs. It should include actual "hands on" delivery of at least one baby under supervision, or at least include an observation of one "typical" delivery. This would require cooperation from the client, TBA, and service provider as well.

Program managers would need to establish training guidelines. Training should be skills oriented. Follow-up training should include how to refer clients to other health services.

Monitoring TT Coverage and Protection by Surveys, Dr. Michael Deming (CDC/Atlanta)

Estimates of TT coverage calculated by doses administered are methodologically flawed. Therefore, surveys to measure TT coverage are essential. The target population of TT coverage surveys is mothers of children born within the last year, and the purpose of surveys is to determine the percentage of these children who were protected at birth against NNT by the vaccination of their mothers. This determination needs to take into account all the TT doses the mothers received prior to the birth. The history of these doses can be based on records kept at home, health facility records, maternal recall, or a combination of these sources.

Coverage based only on records at home is often a gross underestimate because mothers have not received or not kept records of all their TT doses. Complete TT immunization records for women at health centers are available in only a few countries. Therefore, until a lifetime TT immunization card is widely and consistently used, surveys must include maternal recall of TT doses. The accuracy of this recall needs to be evaluated.

A combined TT coverage/tetanus seroprevalence survey in Burundi in 1989 showed a reasonably good correlation between coverage based on maternal recall and seroprevalence. It would be useful to repeat this study in other areas, especially where a large proportion of TT doses have been given outside of pregnancy, since maternal recall for these doses may be less accurate than for TT doses received during pregnancy.

TT coverage surveys will be affected increasingly during the next several years by another source of uncertainty - the growing number of mothers who may have received DPT as infants. It is unlikely that the number of DPT immunizations received (which can count for up to two TT doses in the five-dose series) will be known, either by records or recall, until women reaching childbearing age have a lifetime record of DPT/TI immunizations that was begun during infancy.

Recommendations to consider, with reference to the 1988 revision of the WHO Mid-level Managers Coverage Survey module, are:
- Use maternal recall as well as written records for all mothers in the survey sample. At present the module asks for TT history by recall only if there is no written record at home. However, there may be a written record that is incomplete (e.g., showing only doses received in the last pregnancy).

- Leave space on the questionnaire for more than five doses. For multiparous women who have received two doses with each pregnancy, it may be necessary to take into account more than the last five doses to ascertain the full number of valid doses.

- Include all women who have given birth in the last year in the coverage survey target population rather than mothers of living children under one year of age.

- Find ways of helping women to recognize and remember TT injections, such as consistently using a site which is not used for other injections, and explaining to the mother clearly what TT injections are for.

- Conduct further serological assessment of the accuracy of the "card plus history" method of determining TT immunization status, as in the Burundi study.

The group pinpointed three issues for the client, service provider and program manager. First, routine reporting of doses administered should be encouraged. For the client, this may mean the use of a life-long home-based record. The provider would bear the burden of keeping an accurate record of the information and the program manager would have the difficulty of interpreting "protection."

Another issue is the confusion between "coverage," "protection," and "doses administered." For the health service provider and program manager, this creates further confusion regarding targets and protection in the catchment area.

Finally, a routine sampling of deliveries should be evaluated by applying MCH service indicators and indicators for assessing whether the newborn was born protected by the mother’s TT. This would enhance the potential for improvement of services for the client. Service providers would need to identify and assess a sample of deliveries. For the program manager, it would offer a valid interpretation of "protection."

TT coverage levels should be determined in any coverage survey. Ways to aid recall were suggested (e.g., pinpoint a particular anatomical site for TT injections and always give TT at that site; use a different color injector for TT vaccinations). Serological surveys should be used as a managerial and analytical tool.
Defining High Risk Areas and Groups, Dr. Ciro de Quadros (PAHO/Washington)

The experience in the Americas shows that targeting areas at high risk for NNT will permit policy makers and program managers to start immediate control measures utilizing strategies appropriate to their existing health system. High risk areas can be identified by utilization of existing data from the national morbidity/mortality information systems, even when these are not yet well developed and entirely reliable.

For eleven countries studied in Latin America, it was found that only 191 (9%) of the existing 2,212 districts were identified as high risk, and that women of childbearing age living in these areas represented 21% of all women of childbearing age. Cases were found to be evenly distributed in urban and rural areas, possibly reflecting a surveillance artifact. Nonetheless, analysis of available data was sufficient for program managers to start needed control measures.

Concurrent with control measures, it is imperative that surveillance be established or expanded so that the impact of control measures can be ascertained. Additional data need to be collected for those areas believed to be at low risk to be confident that reported low incidence is not a function of incomplete reporting. The action-oriented approach of this strategy is useful to help increase awareness and the priority given to the elimination of NNT.

NNT control programs need to intensified. A recommendation for the program manager was to use existing information, not to wait for large scale surveys. Implementation would increase awareness on the part of the client and could help to improve prenatal care. Providers would be shown that success is possible. This could be considered a "learning experience" for both the program manager and service provider.

Surveillance may be implemented by using simpler systems to identify high-risk areas or groups. Also, surveillance systems for other diseases may be utilized. The client may be used as a surveillance agent. Providers would need to offer training. This would require knowledge of local culture on the part of the provider and an understanding of service provider views on the part of the client. During the discussion, it was suggested that in defining high risk areas, especially where catchment populations are not known or are subject to change, the number of NNT cases as a proportion of all pediatric admissions would be a useful indicator.

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6. Implementation and Programmatic Sustainability

Small Group Discussion and Presentation

For this session, participants chose one of three small groups in which a presentation was made and discussed. Each group reported on recommendations for clients, service providers, and program managers.

Integrating NNT: Service Delivery Structures and Other Strategies, Dr. Steven Solter (Management Sciences for Health/Boston)

Lack of incentives for cooperation within ministries of health is an obstacle to integration of NNT control into existing service structures. Program managers tend to neglect certain programs and there may be an inefficiency of services. Service providers have to deal with many different demands and may be pulled in many directions by different vertical programs. For the client, this means mixed messages and fragmented services.

Lack of joint planning and training regarding NNT is also a problem. The program manager makes unrealistic demands on the provider; some do not achieve program objectives. The provider may not understand the complementary nature of programs. For both the provider and client, this means missed opportunities. The client is the ultimate victim.

Last, there is a need for NNT strategies involving intersectoral activities. In Indonesia, for example, the MOH collaborated with the Ministry of Religion to immunize prospective brides. Intersectoral collaboration must be done realistically. This implies a responsibility on the part of the program manager to identify benefits for each sector. The provider must be active, not passive. New training skills must be acquired. The client may be able to do "one-stop shopping." In other words, there could be one place where the client can obtain needed services. Finally, Total Quality Management is emphasized — poor quality is a disincentive for the client.

Targeting Young Girls and Women, Dr. Susi Kessler (UNICEF/New York)

The approach to controlling NNT is different than for the other EPI target diseases. The first concern is the target group - who should actually be targeted? All pregnant women? All women aged 15-44? Should the latter group be revised to all "premenopausal" women? All adults? In addition, special strategies are needed. There are often too few prenatal clinics and women frequently arrive too late.

Suggestions for targeting girls and women include immunizing: during EPI sessions; at the marketplace, as in Haiti, or at special outreach areas, such as factories or women’s committees; at schools; and at the time of marriage registration, as in Indonesia.
Mass campaigns may be needed in identified areas of highest risk. This is where efforts should be concentrated. Registration and follow-up of all eligibles would be ideal.

General strategies should focus on: avoiding missed opportunities; integrating NNT into the health service program; looking at opportunities in other sectors; channeling and follow-up by using adequate records; and social mobilization. Sustainability needs to be planned for. Advocacy should be an integral part of the program. Programs need to determine if there is real conviction on the part of the provider that all women should be immunized. The community needs to be educated to create demand. Research should be conducted on reasons for utilization or non-utilization of services.

Finally, program managers will need to evaluate their efforts and examine lessons learned.

Developing National and Local Plans of Action, including Training Workshop Follow-up, Dr. Okwo Bele (WHO/Brazzaville)

The first issue to address in the action plans is the target population. Who should be targeted? For clean delivery, all pregnant women will benefit; for immunization, all premenopausal women. Program managers will need to concentrate on training trainers for clean delivery - this could have a multiplier effect. For the provider, clean births would mean the need for extra resources, and immunization would mean increased work hours and resources.

Another concern is why services are not available or not utilized. More social science studies are needed as well as KAP studies whose findings are used by program managers. Services need to be culturally sensitive - for the service provider, this could be an extra burden. Known female leaders should be utilized to present the issues to garner support for NNT elimination. Program managers will need to use their influence to advocate necessary policy changes.

Implementation plans should be made by national authorities in collaboration with donors. Workshops for developing NNT plans of action should include donors and support should be sought from private and voluntary sectors. Unless workshop goals and objectives are very specific with means to measure and identify them, there will be implementation problems. The objective is to obtain the appropriate status and acceptance of action plans formulated at the workshops. There needs to be room for variation in plans. Plans to get the action plan adopted must also be considered at the workshop. In the AFRO region, 18 plans of action which were formulated at five inter-country workshops were subsequently adopted, and five countries have started to implement their plans.

We need to look at what works. Program managers need to review lessons, looking at both successes and failures. In addition, we need to prepare specific timetables and identify persons responsible for each activity listed in the action plans. Provision also should be made for evaluation. Service
providers need to assist in planning the services they are expected to implement. Finally, clients should be asked for feedback regarding the quality of services provided.

Plenary Discussion

Concerns based on the small group reports included:

- The need to emphasize collaboration from the start. The model which PAHO has used with success for coordinating donor efforts for polio was mentioned as an example.

- Power and money are two issues that carry a lot of weight. We have been using the language of managers - the problem is that sometimes managers do not recognize the play of power.

- TT immunization in the WHO vision for NNT elimination is way ahead of clean deliveries. From lessons learned in provision of TT immunization services, how can clean delivery be facilitated?

- Factors which promote sustainable programs need to be identified at the start when planning additional effort for NNT elimination. Country managers and donors will need to understand the long-term requirements.

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7. Creating and Sustaining Demand for Tetanus Toxoid

Part I: Three Case Studies of Factors that Promote Demand for TT and other Immunizations: Lessons from Programs

Plenary Session

Case Study from Haiti, Dr. Gretchen Berggren (MotherCare/Arlington)

In the 1960s, the Albert Schweitzer Hospital in rural Haiti experienced a growing number of NNT admissions (over 600/year), despite a TBA training program and despite immunization of pregnant women in their well-attended antenatal clinic. A community health outreach program dramatically reduced both NNT incidence rates and hospital admissions to near zero levels from the catchment area.

Key elements of the outreach program were: marketplace immunization programs, after the recognition that Haitian women attend rural markets regularly and welcome services there; utilization of local institutions - churches, schools,
and local leaders - to assist in the program; and follow-up activities to complete coverage through rally posts, preceded by door-to-door enrollment of families using resident home visitors.

After a missed opportunity survey was conducted, a change was made in the hospital's outpatient policy to mandate immunization of all women attending all services. TBAs were trained and used as key change agents for TT immunization and clean delivery. Immunizations were also conducted in schools.

Culturally appropriate techniques were used and intensive NNT case investigations were carried out. Delivery kits were provided to TBAs. One important component of the kits was eyeglasses for TBAs, who tended to be elderly and who had requested them.

Although now, 20 years later, immunizations are no longer given in the markets, there is still no NNT. This is an example of sustained behavior. The researchers feel that there is probably a belief now that a mother must be immunized.

Promotion of Measles Immunization in the Philippines, Dr. William Smith
(Academy for Educational Development/Washington)

Data from Metro Manila EPI compared pre-program, launch, and maintenance phases of measles coverage and demonstrated improvement from 17% in pre-program measles coverage to 25.1% after launch to 31.6% after 14 months of maintenance. The program took place in four phases from October 1987 to the present (program maintenance continues through March 1990). The most important changes introduced during the launch were improved vaccine supplies; the emphasis on "sales conferences" to motivate health workers informally instead of through the previous didactic training sessions; and moderate, but targeted, mass media based on mother's beliefs that measles is the most dangerous of the EPI target diseases.

Analysis of effects on other antigens showed similar improvement for DPT3 and polio 3, suggesting that the educational focus on measles for this population improved timely coverage of all antigens. Finally, an analysis of "missed opportunities" showed a reduction from 70% missed to 50% missed as a result of the campaign. Chronic reasons for missed opportunities were identified as health workers' reluctance to immunize children with low grade fever, give multiple antigens, and immunize children who do not bring health cards.

Key lessons which emerged from this program include the finding that research on mothers' beliefs helped shape an effective program strategy. Coverage was improved when increased consumer demand and improved service delivery were integrated. Mass media messages based on mothers' attitudes helped increase consumer demand for EPI services, and service delivery involved "transforming" health workers into enthusiastic "salespeople" for EPI. Additionally, improved results from mass media and sales conferences were sustainable over periods up to 14 months.
Other aspects of the program included making Friday the "special day" for measles immunization and advertising with comic-style posters. Data sources were vaccination cards, verbal histories, observed health center behavior, and focus groups. This program has proven that improvement can be sustained, with support from a communications strategy, and that disruptions of mass mobilizations can be avoided.

Promoting TT in Turkey, Dr. Umit Kartoglu (UNICEF/Turkey)

Reported NNT morbidity and mortality data in Turkey reveal a case fatality rate far below the expected range, thus indicating major problems in NNT reporting systems. In the NNT survey carried out in Turkey in 1988, low case findings actually had a negative impact by decelerating NNT control activity. From the birthing and cord care practices in the community, it is hard to declare that NNT is not a problem in Turkey. A strong scientific basis exists for increasing TT immunization coverage with adsorbed vaccines to levels recommended by WHO and for extending accessibility of MCH services for antenatal and postnatal care.

Each case of NNT should be seen as an indicator of a problem and should stimulate action. This is critical both so that suffering of children and others from tetanus can be curtailed, and also so that Turkey will not continue to lag behind the rest of the European region of WHO. The region is rapidly eliminating tetanus and serving as an example to other regions of the world.

Data obtained from the 1988 survey show that Turkey is far behind other European countries in its NNT elimination efforts:

- Only three in ten rural women seek antenatal care.
- Forty percent of deliveries take place outside a health unit in unhygienic conditions.
- Protective levels of tetanus antitoxin were found in only 25% of women.
- The TT program in Turkey uses fluid type vaccine and consists of two doses to pregnant women only; immunization is offered only during the sixth and eighth months of pregnancy.
- Pregnant women frequently consult health staff for the first (and sometimes only) time when they are 7 months pregnant, by which late date a previously unimmunized pregnant woman cannot, according to the national schedule, receive the required two doses of TT prior to the delivery.

Turkey intends to change from fluid to adsorbed vaccine. The country will begin importing adsorbed vaccine, but the quantity will be a low proportion of the total vaccine required. An additional plan exists for production of adsorbed vaccine by 1992.
Part II: Social Mobilization and Factors Promoting Demand

Plenary Sessions

UNICEF's Social Mobilization Experiences, Dr. Susi Kessler (UNICEF/New York)

Social mobilization has played an important role in acceleration of immunization programs in many countries. UNICEF is currently undertaking a series of assessments in countries which carried out accelerations to extract lessons regarding social mobilization. Particular attention will be given to sustainability and expansion of programs, and identification of potential indicators of social mobilization success.

Social mobilization is defined as a process to involve and motivate members of a society in its development goals. It seeks to obtain political commitment, develop alliances and partnerships for common goals, generate resources, create and sustain demand, stimulate community development, motivate providers, and empower people. From assessments which have been carried out in Nigeria, Senegal, and Pakistan - countries which carried out significant mobilization activities in relation to an immunization campaign or special immunization days - a number of lessons have emerged:

- Social mobilization is often not viewed as a broad process linked to objectives stated above. It is most often equated with the use of mass media for a campaign. Mobilization activities have therefore often been essentially limited to media action.

- Although mobilization has been successful over the short run in the campaign setting, there has been a failure to focus on long-term, sustained attitudinal and behavioral change. Mobilization should be planned and implemented with a longer-range perspective.

- Communications have often been top-down. Information campaigns have placed emphasis on passive acceptance of immunization rather than on encouraging participatory approaches and truly empowering people to take action for their welfare. This approach is probably not conducive to sustainable action.

- Social mobilization capacity and resources in countries for various mobilization activities have generally been limited. Mobilizations are often not planned, lack budget allocations, and do not draw on all potentially available resources.

- The private sector and traditional health practitioners have often been neglected in mobilization efforts.

- Messages used should be more carefully designed with better targeting of audiences, field testing, and evaluation.
In forming alliances, cooperation is most successful when potential benefits are mutual. In Senegal, the most successful intersectoral collaboration occurred in a program where school children "adopted" babies to be immunized and followed them through their immunization regimen. This served the educational sectors by providing an innovative teaching mechanism and the health sector's interest in reaching children with immunization.

Further assessments will be carried out in at least three other countries. Findings will then be shared at a workshop designed to synthesize lessons and resolve issues.

Plenary Discussion

Concerns raised on social mobilization issues included:

- The need to standardize the language of social mobilization. This would help in disseminating information - the more concrete, the better. Data are better than impressions.

- Other sectors of government should be mobilized in addition to the MOH. Also, there are budgetary concerns. Allocations of resources for social mobilization have been very small; donor contributions have not been a significant proportion.

- "Special" efforts should not exist alone, but should serve as part of a sustained, continued effort. In Senegal, for example, the mobilization failed because of an inability of program managers to provide logistics. The "vision" for NNT elimination will require intensive planning.

Source: Dr. Umit Kartoglu, Public Health Specialist, Turkey
Factors that Promote Demand for TT, Ms. Marcia Griffiths  
(MotherCare/Arlington)

Incorporating mothers' feelings and opinions in program planning may help to promote demand for TT immunization. Formative research with mothers and persons who influence them can reveal, for example, the importance of expanding the number of immunization sites; need to modify the days and hours when immunizations are available; importance of modifying organization of services and the way in which mothers are treated; and need to improve communication on side-effects and follow-up immunizations.

In a marketing sense, qualitative research provides the format for planners and mothers to explore jointly the barriers to immunization acceptance; appeals or motivations that communications should transmit; essential logistical information that mothers require (which children and women, when, and where); and the most appropriate opportunities and channels of communication.

Besides leading to short-term improvements in coverage, program modifications based on this information may be essential for long-term program sustainability. Qualitative research with health workers can also be highly useful. Through such techniques as focus groups, in-depth interviews, and observations, planners can come to understand health workers' perceptions, problems, and fears in carrying out their duties.

Lessons have been learned from the limited amount of research and can potentially be useful for future work:

- Mothers think that NNT is a supernatural disease and thus may question the ability of scientific medicine to prevent it. NNT may not be considered to be treatable at all, particularly by modern medicine.

- In many countries NNT is very well known and recognized by mothers, but in some countries or regions of countries, including Bolivia and Bangladesh, NNT is not a clearly distinguished disease. It is perceived as one manifestation of a more comprehensive disease syndrome. Correct local terminology for NNT must be very carefully researched.

- Even in successful programs, some mothers do not know why they are getting immunized. In Indonesia, many immunized women thought they were receiving a vitamin shot or a family planning shot. Women in several countries cannot relate the TT immunization to the disease. Examples of studies in India and Sri Lanka were cited.

- There has been little if any research on women's feelings about being injected or on their comprehension of the concept of passing on protection to their unborn children. In fact, the latter concept may be a very "hard sell" if approached directly in communications.
Some mothers believe that if they are immunized during pregnancy, the baby will be harmed.

Physicians and epidemiologists may not perceive a need for EPIs to be concerned with the demand for immunization since, in their view, providing sufficient services is all that is required. They also may not readily accept the validity of qualitative research methods and findings. They should be given an opportunity to "buy into" research from the early planning stages.

Plenary Discussion

Issues raised after the presentation included:

- A recurring theme seems to be administrative flexibility (e.g., ability of the health system to alter the days or hours of services).

- The greatest resistance can often come from people in their own country, not from outside agencies.

- How changes in perceptions affect behavior should be examined. For example, in the U.S., peer pressure has had a large impact on smoking behavior.

- The good will that can be built by a trusted institution is one element in sustaining changes in behavior. It is also important to build an esprit de corps. The Albert Schweitzer Hospital in Haiti, for example, received many requests to repeat its NNT program.

- A long-range communications strategy and vision, and use of female agents of change in the community are essential factors for promoting sustainable service delivery.

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8. Neonatal Tetanus Elimination - At What Cost?, Dr. Terrel Hill (UNICEF/New York)

Neonatal tetanus elimination is a priority activity and must be done. If not, more than 3/4 million infants will continue to die yearly, or more than 8 million during the 1990s. This goal will be one of many. Will it be lost or dominate other competing goals?

Neonatal tetanus cases represent a failure of both the health system and society: the mother is not immunized, the delivery is not safe, and the postnatal care is inadequate. Many estimates have been made of the cost; estimates vary, however, depending on the methodology used. The costs are not only financial, but political. It is clear that the health system cannot
achieve this objective alone, but must have community and multi-sectoral support.

High level coverage and low level drop-out rates have been achieved in several countries through complete enumeration and monitoring done by health workers and community leaders. This can be done with monthly services, as in China for infant immunization. Coverage can also be improved by eliminating missed opportunities through improved prenatal care. The triad of TBA, community, and health center must be strengthened to link TT immunization with clean delivery and adequate prenatal and postnatal care.

The cost of the goal depends on the strategy. TT immunization must be done within the EPI and the EPI should function within the context of maternal and child health services for overall cost effectiveness.

Plenary Discussion

Points raised included:

- Enumeration and monitoring can facilitate surveys. In China, the records are so good that you can actually use them in place of surveys.

- Social mobilization and enumeration and monitoring are not necessarily at opposite ends of the spectrum. In fact, a good enumeration system depends on social mobilization. Mixed strategies are important.

- Looking at linkages is important. In Indonesia, enumeration was linked to the religious sector in the immunization of prospective brides. We need to pay more attention to linkages.

- Sponsors are needed to initiate programs. Are there any groups that could do for NNT what Rotary has done for polio?

- The marginal cost of eliminating the last cases, and the methodological issues of documenting elimination, must be addressed.

* * *


Small Group Discussion and Presentation

Three groups were formed to prioritize issues related to policy, programs, and directions for future research. Each group then reported back to the plenary session.
Group 1: Social Science Issues, Rapporteur: Dr. Susan Zimicki (Annenberg School for Communication/Philadelphia)

Efforts should be focused on improving the "Four A's": accessibility, availability, appropriateness, and acceptability. This can be done through enrolling both EPI and maternal care workers. Widening recognition of potential allies can be achieved by identifying points of common interest among various groups and developing a system for mutual benefit. This can also be achieved by identifying programs that reach the community and women as well. Women's groups should be strengthened and assisted through information and linkages with services. This type of advocacy can be done both formally and informally.

Clear goals will help define the components of the program, including indicators and targets. Tools should be developed to assess both health workers' and women's perceptions of NNT. Information gained can be used to modify those perceptions and overcome barriers. Motivational factors must be determined as well. Opposition groups can be identified and turned into advocates. Concern was expressed about the lack of a pool of experts in the area of applied social science. Utilizing results of social science research is sometimes more an art than a science.

Group 2: Management/Economic Issues, Rapporteur: Dr. Steven Solter (Management Sciences for Health/Boston)

The first priority is the need for country-specific commitment and strategies. EPI and NNT must be kept on everyone's agenda (donors, countries, etc.). Commitment of key people in the MOH as well as other government agencies is needed, including heads of state. National NNT strategies must include clean birth practices. Methods of cost-effectiveness analysis for deciding alternative strategies must be developed.

Another issue is resource availability and donor coordination. Goals, resources, and interested groups must be identified. Meetings should be planned for donors and inter-agency committees should be formed. Resource commitments must be obtained.

The quality of service delivery was also identified as an issue. Needs assessments must be carried out and training/supervision plans must be developed. Logistics and supplies need to be considered as well. Finally, high risk areas and population groups must be identified. Once identified, VACCINATE!

Group 3: Surveillance and Monitoring, Rapporteur: Dr. Michael Deming (CDC/Atlanta)

A lifetime card is a priority need, although it does not necessarily have to be only for TT. Moreover, the group agreed that a card is not an immediate
solution to the problems of surveillance and monitoring. The card must be developed, reviewed, redesigned, pilot tested, and standardized.

In addition, there are no approved indicators for monitoring clean delivery and cord care. There is a need to develop such indicators and incorporate them into pilot data collection. Also there is no consensus on valid indicators for TT coverage. Methods that work for childhood antigens do not work for TT. Consensus needs to be reached and indicators must be validated before too much time passes.

Another problem is that existing data are not fully used and data collection is not integrated. Planners should review what data already exist and supplement the data with surveys where appropriate. Finally, there is inadequate community disease surveillance. Planners need to review the experience with disease surveillance and develop appropriate guidelines.

Plenary Discussion

Reactions and comments on the session included:

- It is important to clarify the issues so we do not "spin our wheels." If we can do half of what has been discussed, we will have done much more than has been done in the past.

- Management seems to be focused on national strategies; community and district strategies for NNT elimination are needed as well.

- Health workers need to be trained in focus group work. TBA training must be improved.

- The role of non-governmental organizations in NNT elimination should be discussed.

- A fear of too many surveys was expressed. There may be some specific times and places where you need surveys. However, if a survey is to be done, it must be justified.

- One long-term goal is sustained behavioral change. A big contribution to EPI as a whole can be made by successfully using NNT as an example.

- By focusing attention on clean birth practices and prenatal immunization, NNT elimination strategies offer the opportunity to reduce maternal mortality, as well.

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CLOSURE: MEETING SUMMARY AND FINAL REMARKS

Closing Remarks, Dr. Robert Kim-Farley (WHO/Geneva)

Over the last three days, features and ramifications of the NNT Elimination Initiative have truly been explored in breadth. We have identified important issues and challenges that are before us.

The enthusiasm for the 1995 elimination goal and the commitment to meet that goal demonstrated in the discussions and comments by everyone present was particularly impressive. The earlier keynote address had noted that it is not the time for doubts about the goal; it is the time for determination to make our best efforts to achieve it. This Meeting, in fact, demonstrated that organizational and individual determination. This very determination, coupled with the collaborative spirit evidenced in our consultations, may be perhaps one of the most important outcomes of this Meeting that sets a strong foundation for our future efforts.

The breadth of issues discussed covered most of the areas of the Global Plan of Action for NNT Elimination, including: disease surveillance, immunization coverage, clean delivery and post-delivery practices, planning, training, social mobilization, monitoring and research areas. We recognized the importance of country-specific approaches to generate commitment, develop neonatal strategies within national plans of action, and focus on the quality of EPI and MCH service delivery. Identification of high-risk areas and population groups as well as donor coordination at country level were also considered to be important issues. What we all did feel, however, is that it was not possible to cover these issues in the depth that they all deserve - yet we also recognized it would not have been even feasible to try to do this. These issues may require, in some instances, special working groups devoting time to detailing the specific activities and making recommendations for guidelines that can be adapted to the varied country, province and district level situations around the world.

Based on our discussions, and especially noting the deliberations this morning, some of the important actions and "next steps" that need to be taken are suggested. First, there is the recognition of a need for a forum for developing NNT elimination technical recommendations at the global level. In the Poliomyelitis Eradication Initiative this has been accomplished through an informal consultative group that meets annually to make recommendations to the EPI Global Advisory Group (GAG). Based on the views expressed at this Meeting, the EPI will plan to explore the feasibility of establishing such a WHO informal consultative group on NNT elimination to address some of these issues. Ideally, this group could be convened prior to October 1990 so that its recommendations could be endorsed by the EPI GAG which is scheduled October 14-18 in Cairo. This timing would also allow for any research and development issues to be brought before the EPI Research and Development Group which is scheduled to meet just prior to the EPI GAG meeting.

This consultative group would, however, need to have carefully prepared background papers and options prepared for its consideration. It would appear
reasonable that working groups could be formed for preparation of such papers. Based on the Global Plan of Action and consultations over the last three days, it seems that the following are some of the high priority areas:

- EPI indicators for TT activity, coverage and protection;
- MCH indicators for clean delivery and proper cord care (including pilot data collection activities for suggested indicators);
- Public health communication/social mobilization (including refinement, especially at country level, of the tools to assess perceptions and training of personnel on how to use this information to modify perceptions and overcome barriers to a change in behavior);
- NNT surveys (including the appropriate role of lot quality assurance techniques and the need to consider the integration of such surveys with other health surveys);
- Costing guidelines especially designed to help EPI and MCH program managers allocate resources for immunization and clean deliveries. This could be combined with guidelines on selecting strategies emphasizing district level problem solving;
- Missed opportunity surveys on the quality of prenatal care using a methodology based on the EPI missed opportunities studies;
- NNT surveillance (although some basic work has been done through development of a revised EPI disease surveillance module, there may be a need for refinement in the future, especially to develop guidelines for community surveillance. There is also the need for more emphasis on actually implementing effective surveillance); and
- A lifetime immunization record (including a review of experiences to date and suggested approaches).

Another area of WHO, the Trans-disease Vaccinology Programme, is working on development of a single injection slow-release TT vaccine and it will be important for the consultative group to closely follow the progress of its development. Single injection packets for TT are another promising area of research.

These are the areas that appeared to be of high priority based on our discussions. Terms of reference for such working groups and the consultative group would be developed in consultation with those involved in the NNT elimination effort. In the medium-term, the need for a global conference on NNT elimination is anticipated, perhaps in 1992, where the experiences gained could be reviewed and mid-course corrections made. This could be a special meeting or could take place as part of an EPI GAG meeting.

It is anticipated that participants will all arise to serve in the respective roles that represent each agency and individual areas of expertise. These
roles in NNT elimination include: goal setting, policy formulation, training and educational materials, training programs, information dissemination, program assistance, technical assistance and donor coordination. The initiative will only be achieved through a collaborative effort. The challenge lies in "building the bridges" that have been discussed in this Meeting: bridges between EPI and MCH, bridges between health and other sectors within governments, bridges between government and non-governmental organizations, bridges within local communities, and bridges between all in the international community who can assist to make this vision of global NNT elimination a reality.

Final Remarks, Dr. Ann Van Dusen (A.I.D./Washington)

No one agency or group can achieve NNT elimination alone. Collaboration will be needed. The momentum, enthusiasm and commitment evident at this Meeting should be capitalized upon.

New policy developments and initiatives which could affect NNT are: growing interest in the multiple roles of females as caretakers, workers, and community leaders; interest in basic education and female enrollment; and increasing attention given to adult health. To achieve the NNT elimination objectives, programmatic and perceptual shifts are needed. Operations research and financing studies also need to move ahead.

Apprehensions which all participants may be feeling concern donor fatigue, the changing demography of the developing world, and a possible fear of success (i.e., If much is accomplished in 1990, what happens in 1991?). However, there are opportunities we should take advantage of: Enthusiasm is apparent, we are getting better at considering lessons learned, and the newly identified priorities are encouraging.

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ANNEX 1

Meeting on Neonatal Tetanus Elimination: Issues and Future Directions

Purpose

The Meeting on Neonatal Tetanus (NNT) Elimination will bring together key individuals and institutions involved in NNT for the expressed purpose of discussing technical issues and strategies for the control of NNT. The discussions will identify current and future activities, positions/expectations of those involved, areas of commonality and differences, and gaps in services and research.

Meeting Objectives

During the Meeting participants will:

1. Discuss recent World Health Organization/Global Advisory Group (WHO/GAG) recommended strategies for Neonatal Tetanus elimination and issues regarding these strategies.

2. Discuss selected technical areas with the intent of:
   a) clarifying methodological and technical issues;
   b) identifying lessons learned;
   c) collecting information on current efforts and future plans for NNT elimination; and
   d) identifying specific areas of collaboration for 1990.

Meeting Format

Given that the purpose of the Meeting is to share ideas and experiences, the Meeting design will utilize small group work, presentation of case studies, panels, and a few selected technical presentations. The emphasis will be on generating discussions and capturing ideas.

The Meeting will have a facilitator, who will be responsible for overall design of the Meeting, working with technical presenters, making transitions between sessions, and structuring small group work.

Key technical experts will be used during the Meeting as panel members, presenters and discussion leaders. They will be contacted and briefed by the Meeting facilitator regarding the expected content of their presentation, how the presentation fits into the overall Meeting and their role during the presentation.
ANNEX 2

Meeting Agenda

JANUARY 9, 1990 TUESDAY

8:30  Introductions: Robert Clay, USAID  
     Official Opening: Brad Langmaid, USAID (15 mins.)  
     Keynote Address: Dr. Robert Kim-Farley, WHO (15 mins.)

* Growing awareness of the importance for NNT  
* NNT as part of a whole picture of decreasing infant mortality  
* Resources being committed to NNT elimination  
* The significance of NNT efforts targeting a "special clientele"  
* Encourage open discussion during meeting and collaborative efforts in NNT elimination  
* Challenge participants to address the difficult issues of how to mobilize community and political support for NNT, sustainability of an elimination/eradication effort, the competing and convergent interests - polio vs NNT, MCH vs EPI, donors vs MOH, control vs eradication.

9:00  Meeting Overview: Tom Leonhardt, Facilitator

* Participant Introductions  
* Purpose & Objectives of Meeting  
* Identification and sharing of expectations  
* Matching expectations with agenda  
* Sharing of norms and process

9:45  A Look at the Neonatal Tetanus Initiative (Panel)  
     Moderator: Robert Clay, USAID

Panel members address the following areas and answer questions regarding their comments:

* Historical background of NNT - the evolution of strategies for NNT control over the years: Dr. Artur Galazka, WHO (15 mins.)  
* WHO's vision of NNT elimination - an overview of WHO's strategies and what is being done: Dr. Francois Gasse, WHO (15 mins.)  
* What difference will NNT elimination make in infant and under 5 mortality?: Dr. Susan Zimicki, CIHDC (15 mins.)

10:45-  Break
11:15

Introduction: Dr. Pierre Claquin, REACH
Participants will work in small groups to discuss the implementation issues related to WHO/GAG working paper.

11:45- Small Group Report Out and Discussion

12:30 Lunch

1:30- NNT's Client and Her Needs:

3:00 Moderator: Dr. Pam Johnson, USAID
Introduction: Dr. Pierre Claquin, REACH
Dr. Therese Blanchet, (ANE)
Dr. Joseph Bastien, (LAC); Deborah Armbruster (AFR)

* Groups will work with a resource person to explore the "unique client" of NNT and examine strategies for services and communication which better meet her needs.

* Groups will have 45 mins. to complete their strategies followed by 12 minutes reports from each group. Discussion.

3:00 Break

3:30- Concurrent Sessions: Building Consensus on Issues

Session 1: The Cost Effectiveness of Elimination Strategies: Dr. Gerard Foulon. (15 mins. presentation with 45 minute discussion).

* Technical presentation which includes data on actual costs of adding and/or expanding NNT intervention in EPI; what are all the factors.

* Presentation should also include data available on program costs and cost effectiveness analysis.

* After the presentation in the small group, a discussion will follow on what are the unaddressed issues and what issues need continued emphasis. (This discussion will be facilitated by the Technical Presenter. A rapporteur will be needed for this session.)

Session 2: Complementary Strategies to Immunization to Eliminate Tetanus: Dr. Richard Guidotti, WHO/MCH (15 mins. presentation with 45 minutes discussion).

* Technical presentation which includes information on clean birthing techniques, TBA training, efforts to educate women, efforts to encourage hospital births, and integrating MCH and EPI.
After the presentation in the small group, a discussion will follow on what are the unaddressed issues and what issues need continued emphasis. (This discussion will be facilitated by the Technical Presenter. A rapporteur will be needed for this session.)

Session 3: Role of Surveys: George Stroh, CDC (15 mins. presentation with 45 minutes discussion).

Technical presentation which includes information on issues related to sampling, verbal autopsy, sero surveys, missed opportunity, surveys, intercepts, case investigation, and cluster surveys.

After the presentation in the small group, a discussion will follow on what are the unaddressed issues and what issues need continued emphasis. (This discussion will be facilitated by the Technical Presenter. A rapporteur will be needed for this session.)

NOTE: Participants will be asked to sign up for one of the 3 sessions and will receive the background articles in their registration packet.

4:30 - Reports from Concurrent Sessions and Discussion
5:15

5:15 - Daily Evaluation and Feedback
5:30

7:00 - Dinner (optional) @ Casablanca, Old Town

JANUARY 10, 1990 WEDNESDAY

8:30

Surveillance/Monitoring/Indicators
Moderator: Dr. Mary Ann Anderson, USAID (Presenters noted for different groups, each presentation will be 15 minutes followed by 45 min. small group discussion).

* Small groups will work to outline the issues for each selected topic, noting special implications for clients, service providers and program managers.

* Selected topics are:

b. Personal Home-Based Records: Dr. Francois Gasse, WHO
c. Role of Sentinel Surveillance in MNT Elimination: Dr. Stanley Foster, CDC
d. Role of TBA in Prevention & Surveillance: Dr. Gretchen Berggren, MotherCare

e. Monitoring TT Coverage & Protection by Surveys: Dr. Michael Deming, CDC

f. Defining High Risk Areas/Groups: Dr. Ciro de Quadros, PAHO

9:45 Reports from Small Groups and Discussion

11:00 Break

11:30 Discussions on Implementation and Programmatic Sustainability (presenters noted for selected topics).

* Using same small group format as earlier, new groups will discuss the following topics. Each group will develop a short report out on the issues and implications for clients, service providers and program managers.

* Selected topics are:

a. Integrating NNT: Service Delivery Structures and Other Strategies: Dr. Steven Solter, MSH

b. Targeting Young Girls and Women: Dr. Susi Kessler, UNICEF

c. Developing National & Local Plans of Action, Including Training Workshop Follow-up: Dr. Okvo Bele, WHO/AFRO

NOTE: The identified resource people will participate in the selected groups by presenting basic overview of the topic area and facilitating a discussion of those present. The resource person is not responsible for a formal presentation.

12:30 Lunch

1:30-2:00 Small Group Report Out on Implementation and Programmatic Sustainability and Discussion

2:00-4:45 Creating and Sustaining Demand for Tetanus Toxoid

Introduction: Holly Fluty, USAID

Moderator: Marcia Griffiths, MANOFF

2:00-2:45 Part I: Three Case Studies in Factors that Promote Demand for Tetanus Toxoid and Other Immunizations: Lessons from Programs

* Presentation of Haiti Case Study: Dr. Gretchen Berggren, MotherCare (15 mins.)

* HEALTHCOM Promotion of Measles Immunization in Philippines: William Smith, AED (15 mins.)

* Promoting TT in Turkey: Dr. Umit Kartoglu, UNICEF (15 mins.)
2:45- Discussion of Part I
3:15
3:15- Break
3:45- Part II: UNICEF's Social Mobilization Experiences: Dr. Susi Kessler
4:15- UNICEF (15 mins.)

Factors that Promote Demand for TT: Insights from Research
Marcia Griffiths, MANOFF (15 minutes)

4:15- Discussion of Part II
4:45
4:45- Daily Evaluation and Feedback
5:00

JANUARY 11, 1990 THURSDAY

8:30 Eliminating NNT: At What Cost?:
Introduction: Dr. Ann Van Dusen, USAID
Presenter: Dr. Terrel Hill, UNICEF

Presentation which looks at competing priorities and places NNT elimination in a "real world".

9:15- Concurrent Sessions
10:15 Existing Needs: Policy, Research, and Programmatic

Three groups will be formed to prioritize issues related to policy and programs and directions for future research (45 mins.)

* Group 1: Social Science Issues: Dr. Susan Zimicki, CIHDC
* Group 2: Management/Economic Issues: Dr. Francois Gasse, WHO
* Group 3: Surveillance and Monitoring: Dr. Michael Deming, CDC

10:15- Break
10:45

10:45- Report Out From Small Groups and Discussion
11:30

11:30- Discussion and Concluding Comments From the Donor Community
12:00
12:00-  Closure: Meeting Summary Dr. Robert Kim-Farley, WHO
12:15
12:15- Final Remarks: Dr. Ann Van Dusen, USAID
12:30
Evaluation
Meeting on Neonatal Tetanus Elimination:  
Issues and Future Directions

List of Participants

AGENCY FOR INTERNATIONAL DEVELOPMENT

Mr. Brad Langmaid, Acting Assistant Administrator, ST
Dr. Ann Van Dusen, Acting Agency Director for Health
Mr. Robert Clay, Acting Chief, Health Services Division
Dr. Pamela Johnson, Acting Chief, ST/H/AR
Dr. Mary Ann Anderson, Public Health Advisor, ST/H/HSD
Ms. Holly Fluty, Public Health Advisor, ST/H/HSD
Mr. Caesar Gonzmart, Public Health Advisor, ST/H/AR
Mr. Jack Thomas, Public Health Officer, LAC/DR/HPN

REACH (John Snow, Inc.)

Ms. Diane Hedgecock, Deputy Director
Dr. Pierre Claquin, Associate Director
Mr. Robert Steinglass, Senior Technical Officer
Dr. Mary Carnell, Senior Technical Officer
Mr. Luca Spinelli, Coordinator, Haiti
Dr. Jean-Paul Chaine, Chief of Party, Bangladesh
Ms. Rebecca Fields, Senior Technical Officer
Ms. Sharon Rayball, Program Associate

MOTHERCARE (John Snow, Inc.)

Dr. Marjorie Koblinsky, Director
Ms. Marcia Griffiths, Technical Advisor, Manoff
Dr. Gretchen Berggren, Technical Advisor, SCF
Ms. Connie Keedle, Consultant
Ms. Marcia Sell, Program Assistant

WORLD HEALTH ORGANIZATION

Dr. François Gasse, EPI Medical Officer, Geneva
Dr. Robert Kim-Farley, Acting EPI Director, Geneva
Dr. Artur Galazka, EPI Medical Officer, Geneva
Dr. Okwo Bele, EPI Medical Officer, AFRO
Dr. Richard Guidotti, MCH Medical Officer, Geneva
PAHO

Dr. Ciro de Quadros, Regional Advisor, EPI
Dr. Claudio Silveira, Short-Term Consultant, EPI
Dr. Carlos Castillo, Resident, HPM/EPI

UNICEF

Dr. Susi Kessler, Senior Project Officer
Dr. Terrel Hill, Senior Health Advisor, UCI
Dr. Umit Kartoglu, Public Health Specialist

CENTERS FOR DISEASE CONTROL

Dr. Stanley O. Foster, Director of Field Services, IHPO
Dr. Steven Wassilak, Medical Epidemiologist, IERS
Dr. Michael Deming, EPI Operational Research Coordinator, IHPO
Mr. George Stroh, Assistant Director, FSEPO
Ms. Anne Voigt, Nurse Educator, IHPO

WORLD BANK

Ms. Anne Tinker, Health Specialist

ACADEMY FOR EDUCATIONAL DEVELOPMENT

Dr. William Smith, Executive Vice President
Ms. Cecilia Verzosa, Senior Communications Specialist

CENTER FOR INTERNATIONAL HEALTH INFORMATION

Dr. Roy Miller, Associate Director

PRICOR

Dr. Stewart Blumenfeld, Deputy Director

DEMOGRAPHIC HEALTH SURVEYS

Dr. Ties Boerma, Country Monitor
Dr. Susan Zimicki, Research Director

Ms. Deborah Armbruster, Project Coordinator, Special Projects

Ms. Petra Osinski, Doctoral Candidate, Institute for International Programs

Dr. Steven Solter, Principal Program Associate

Dr. Robert Gilman, Associate Professor of International Health, JHU
Dr. Odile Leroy, Consultant
Dr. Richard Arnold, Consultant
Dr. Therese Blanchet, Consultant
Dr. Zeil Rosenberg, Medical Advisor, NYC Department of Health
Dr. Joseph Bastien, Professor, University of Texas
Dr. Gerard Foulon, Consultant
ANNEX 4

List of Background Materials


5. Summary and Conclusions Regarding Neonatal Tetanus from the GAG, Tokyo, Japan 1989, unpublished.


7. Outline for the presentation of Mr. George Stroh (Role of Surveys), including cover pages of the following materials:
   


d. Does Training TBAs Prevent Neonatal Tetanus? (D. Ross, Health Policy Planning 1, 2. 1986)

e. EPI and Epidemiological Surveillance and Health Situation and Trend Assessment – Immunization Coverage Survey Methodology Studies. (Wkly Epidem Record, 62, 29. July 17, 1987)


h. EPI - Neonatal Tetanus Mortality Surveys, Egypt. (Wkly Epidem Record, 62, 44. October 1987)


j. Reduction of Neonatal Tetanus by Mass Immunization of Non-pregnant Women: Duration of Protection provided by One or Two Doses of Aluminum-adsorbed Tetanus Toxoid (Bull WHO, Black et al., 58, 6. 1980)

k. EPI - Neonatal Tetanus Mortality Survey, Ivory Coast. (Wkly Epidem Record, 58, 10. March 11, 1983)

ANNEX 5

Summary of Evaluation Findings

In order to provide feedback about the timeliness and usefulness of the NNT Meeting, participants evaluated the Meeting's sessions, its logistical aspects and overall success. The main focus of the evaluation was whether or not the sessions had been useful to the participants as professionals working in the field of neonatal tetanus.

Each participant rated the Meeting's sessions on a scale of 1 to 5, 1 being of little usefulness and 5 being very useful. In general, participants found the sessions to be useful: the average rating was 3.8. The number of sessions rated above 3.5 was 21 out of the total of 26 sessions, and the number of sessions rated 4.0 or above was 13 out of the total 26. Typical comments were:

"Helped me to understand the importance of district level planning."

"More speakers and working groups needed on clean delivery."

Participants rated the overall logistical aspects of the Meeting at 4.0. The hotel was judged difficult to reach by public transportation, and the meeting room was inadequate for the number of participants and for effective small group work.

The overall rating for the Meeting was 4.6. This appears to reflect the timeliness of the Meeting ("An excellent conference at the right moment.") and the fact that it promoted an exchange of ideas and information on NNT ("...good spirit of collaboration;" "Thanks for doing this - promoting network and consensus..."). Many of the participants felt, however, that more time was needed for in-depth small group discussions.

In conclusion, based on oral feedback received by the Meeting organizers and on evaluation forms completed by participants, the Meeting can be judged a success.