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PLANNING AND CONDUCTING DIPHTHERIA MASS IMMUNIZATION CAMPAIGNS

Drafted by
WHO/EURO/CDC/USAID/BASICS

1996

EUR/HFA target 5

TARGET 5

REDUCING COMMUNICABLE DISEASE

By the year 2000, there should be no indigenous cases of poliomyelitis, diphtheria, neonatal tetanus, measles, mumps and congenital rubella in the Region and there should be a sustained and continuing reduction in the incidence and adverse consequences of other communicable diseases, notably HIV infection.

ABSTRACT

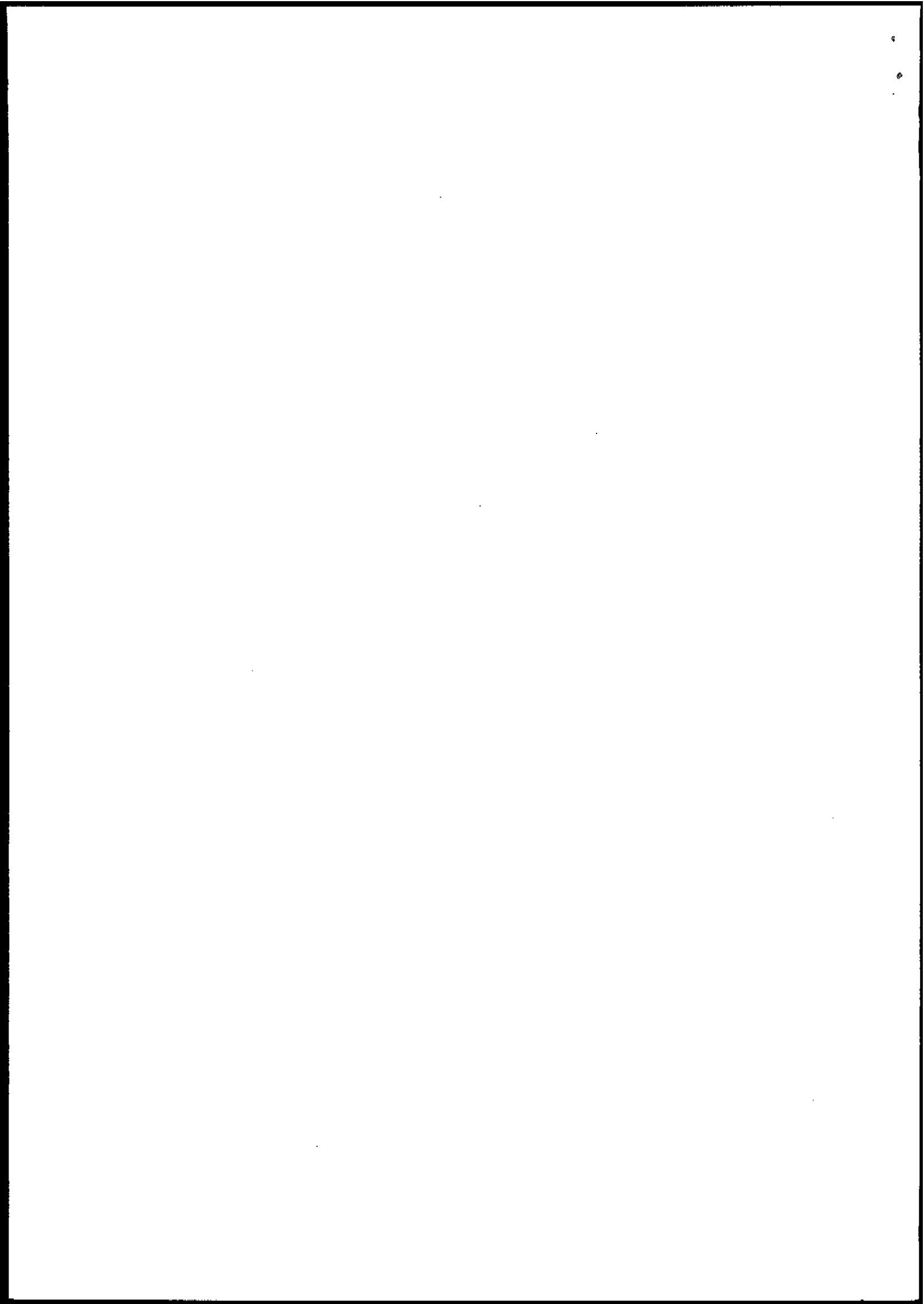
The diphtheria epidemic continuously affects the European Region, accounting for more than 80% of diphtheria cases reported worldwide. The WHO/UNICEF strategy for control of the diphtheria epidemic in the newly independent states of the former USSR recommends vaccination campaigns targeting both children and adults. This document is primarily intended for use by ministries of health which are planning to conduct diphtheria immunization campaigns to control epidemic diphtheria in their countries. It provides a detailed outline on how to implement national plans of action for diphtheria control through a careful preparation and conduct of time-limited mass campaigns, building on experiences gained from polio national immunization days. The primary objective of diphtheria immunization campaigns is to rapidly raise the level of population immunity to diphtheria, thereby preventing as many cases and deaths as possible, and ultimately achieving control of the disease.

Keywords

DIPHTHERIA – prevention & control
IMMUNIZATION PROGRAMS – organization & administration
(1) UNICEF
NIS

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Dedicated to the memory of Dr Iain R. B. Hardy

1. Purpose of this document

The WHO/UNICEF strategy for control of the diphtheria epidemic in the New Independent States (NIS) of the former Soviet Union recommends vaccination campaigns targeting both children and adults. This document is primarily intended for use by Ministries of Health which are planning to conduct diphtheria immunization campaigns to control epidemic diphtheria in their countries. It is intended to provide a framework for the preparation and conduct of time-limited mass campaigns. It may also be useful as a framework for international agencies involved in monitoring or evaluation of diphtheria immunization campaigns.

All countries have national plans of action for diphtheria control. However these plans were largely limited to an estimate of resources required to control diphtheria. This document aims to provide a detailed outline of how to implement these plans.

The content of the document draws from WHO materials developed for planning and conduct of polio National Immunization Days (NIDs). Careful planning has been a key factor in the successful implementation of NIDs and their dramatic effectiveness in eliminating polio from many countries. Detailed planning of diphtheria immunization campaigns is even more important as immunization against diphtheria is more complex and challenging than polio immunization, for several reasons. For one the vaccine is injected, therefore needles and syringes are required. Vaccinators have to be more highly trained, vaccination takes longer per person, and injection equipment must be safely disposed of. All ages are being targeted, not just preschool children, and different vaccine preparations are recommended for different age groups. Clearly, a further important difference is that NIDs for polio are a strategy to eradicate an endemic disease, whereas immunization campaigns against diphtheria are an attempt to rapidly control an expanding epidemic. There is more urgency to conduct diphtheria campaigns in a timely manner and consequently the planning process must be accelerated. There is generally a period of at least 3 months from the time that funds to purchase vaccine are identified until delivery of the vaccine can occur. This gives a period of at least 3 months for planning the campaign.

2. Information about diphtheria immunization campaigns

The primary objective of diphtheria immunization campaigns is to rapidly raise the level of population immunity to diphtheria, thereby preventing as many cases and deaths as possible, and ultimately achieving control of the disease. Ideally, the entire population of children and

adults from 3 to 60 years of age should be vaccinated. Everyone should receive a single dose of diphtheria toxoid **irrespective of their past vaccination history.**¹

If vaccine is available, it is best to vaccinate all age groups in all regions simultaneously over the shortest period possible because: (1) social mobilization will be more effective if the whole country can receive a standard, simple, repeated message about the need to be vaccinated at a certain time; and (2) increasing population immunity to high levels over a short period of time may be more effective in controlling spread of diphtheria than a more gradual increase in population immunity. Therefore, diphtheria immunization campaigns should be viewed as a major, time limited event (two to four weeks), involving extensive political support, organization, and publicity in various types of news media, rather than as an effort to raise immunization levels gradually.

If insufficient vaccine is available to vaccinate the whole country at once, the preferred strategy is to vaccinate the country successively by regions, beginning in regions with the highest incidence of diphtheria.

Crucial factors for a successful campaign are high level political commitment, sufficient advance planning, committing sufficient numbers of qualified personnel to the organization of the campaign, and ensuring coordination between all involved parties.

To ensure good communication and coordination of diphtheria control measures, all countries should have an **Interagency Coordinating Committee (ICC)**. The chairman of this committee should be a high ranking official in the Ministry of Health. Represented on the committee should be national health agencies, non-health sectors and all international agencies working in the health field (multilateral, bilateral, and nongovernmental organizations). The ICC should meet regularly. The ICC is useful not only for diphtheria control, but also for preparing and conducting poliomyelitis mass immunization and other immunization and disease prevention activities.

3. Suggested timeline for planning and conducting diphtheria immunization campaigns

The timeline outlined in this document should be regarded as an example or model. The exact schedule chosen will vary with the particular situation and type of campaign planned in different countries. In all cases, planning as far in advance as possible and paying attention to detail will give the best chance of assuring high coverage. In certain circumstances, longer

¹ In addition to diphtheria immunization campaigns, it should be assured that all children from 0 to 2 years of age are up-to-date for age with scheduled immunizations. All children should receive 4 doses of DPT (or DT, if pertussis vaccine is contraindicated) before their second birthday. The incidence of diphtheria in adults greater than 60 years of age is significantly lower than among younger adults because most older people have natural immunity to diphtheria. Therefore in most cases it will be sufficient to target only adults up to 60 years old (in some countries, 50 years old). In some countries, certain age cohorts of adults were born before routine vaccination against diphtheria was carried out, but after the incidence of diphtheria was falling. As a result of this, they were not immunologically primed to diphtheria toxin/toxoid. These persons will not be protected against diphtheria by a single dose of diphtheria toxoid, and require a total of 3 doses. In Russia and Ukraine, this corresponds to the age group 30-50 years.

planning and preparation periods may be possible, as when there are few diphtheria cases in a country, or when ample planning time is available. Annex 1 contains a summary timeline, and Annex 2 contains planning checklists (tasklists) for the central, provincial, district, and vaccination post levels.

PRELIMINARY STEPS – PREREQUISITES TO DETAILED PLANNING

Several preparatory steps need to be taken before detailed planning can begin.

1. Obtain high level political commitment and consensus

Obtaining high level political commitment to both actively participate and support diphtheria immunization campaigns is a necessary prerequisite for their success. This support should be obtained as far in advance as possible. Besides commitment from the Minister of Health, the backing of the Ministry of Finance and the Head of State should be obtained. Clearly defined objectives should be presented to these national authorities. In addition, the support of major national and international partner agencies should be gained.

2. Appoint a National Diphtheria Control Coordinator

The coordinator should be a person should have good managerial skills, experience with immunization, and should be available throughout the planning and implementation of the campaign.

3. Determine availability of vaccine and vaccinators, and choose appropriate dates for the immunization campaign

Dates should be chosen far enough in advance to allow time for thorough planning and for vaccine procurement. Clashes with the dates of other major events involving the public or public health personnel (important national holidays, etc.) should be avoided. If possible, campaigns should be conducted before the seasonal increase in transmission and disease incidence that usually begins in August–September.

The current situation with regard to diphtheria vaccine supply for the NIS means that (i) in many circumstances, the available quantity of vaccine will be insufficient to assure vaccination of the entire country; and (ii) the dates chosen will depend on the availability of vaccine.

The quantities of vaccine that will be purchased using government and donor funds, and the delivery schedule for the vaccine, should be determined as early as possible. This information should be shared with relevant national and international agencies.

The number of vaccinators needs to be determined based on the amount of vaccines available for the campaign and the structure of the area where the campaign will occur.

Remember: manufacturers require a minimum of 3 months from the time that they receive an order for vaccine until they can deliver the vaccine. Orders should be placed as far in advance as possible.

4. **Define and determine the target population by geographic area and choose the final target area/population according to the number of doses of diphtheria vaccine projected to be available**

Unless there has been considerable vaccination of adults, the target age group for a region is usually the entire population of the region from 3 to 60 (sometimes 50) years of age. Children aged 3 to 6 years should receive pediatric formulation diphtheria and tetanus toxoids (DT), and persons aged 7 years and over should receive the adult formulation (Td). Children below 3 years of age should be covered through the routine immunization programme.

Methods for determining the target population are outlined in Section 4.1.

The geographical population for the campaign is chosen based on the projected vaccine doses that are assured, to be available by the dates chosen for the mass campaign. The number of doses needed is determined as follows:

doses needed = target population x wastage multiplier

(suggested wastage multiplier when using 10-dose vials = 1.3, the wastage factor will be different when using other vials).

If sufficient vaccine will be available to vaccinate the entire population, other supplies (especially needles and syringes) are adequate, and the infrastructure (cold chain, personnel, transport) has the capacity to deliver and administer the vaccine, then the campaign may be organized to cover the entire country. Otherwise, it will be necessary to organize a series of subnational (regional) campaigns, beginning with highest risk areas.

If vaccine supplies are uncertain, it may be necessary to have contingency plans involving a smaller area and a smaller population than can be targeted if all of the expected vaccine is delivered. However uncertainty should not delay planning. For example, social mobilization materials should all be planned in advance.

5. **Determine needs for other resources and plan for their procurement**

Needs for resources in addition to vaccine (such as needles and syringes, additional cold chain equipment, training, transport for supervision and distribution of supplies and vaccines and social mobilization) should be calculated well in advance. Procurement of items should be planned and monitored routinely (see Section 4).

6. **Prepare a preliminary budget**

A preliminary budget should be prepared and should include: vaccine, cold chain equipment and supplies, printed materials, training, transport, social mobilization, personnel, administration).

The remainder of this suggested schedule of activities is based on a planned national diphtheria immunization campaign. It should be modified as appropriate if subnational campaigns are planned.

MORE THAN TWELVE WEEKS BEFORE THE CAMPAIGN

1. Establish a national diphtheria control committee

If not already done, a national diphtheria control committee should be formed. The national diphtheria control coordinator should be the secretary of the national diphtheria control committee. The committee should oversee the planning of mass diphtheria immunization campaigns. Subcommittees should be created with responsibility for: (i) coordination and logistics; (ii) social mobilization; and (iii) training and technical issues.

2. Develop tasklists

The national diphtheria control committee should develop four tasklists (checklists) for the central, provincial, district/ rayon, and immunization post level. Examples are found in Annex 2.

3. Develop and post the schedule of tasks and activities

Based on the planned timeline and task lists, the schedule of necessary tasks and activities for planning and implementing diphtheria immunization campaigns should be developed and posted in a visible place in every office at every level involved in planning and conducting the campaign. The calendar should describe: the specific activity or task; the date by which the activity/task is to be completed; and the person or committee responsible for accomplishing the activity or task.

4. Develop logistics forms

The national diphtheria control committee should develop three logistics forms (spreadsheets) for the central, provincial, and district level. Examples are found in Annex 4.

TWELVE WEEKS BEFORE THE CAMPAIGN

1. Meeting with province/oblast level health officials, including NGOs who can assist

The national diphtheria control committee should hold a meeting with provincial health officials to: explain the objectives of the diphtheria immunization campaign; either appoint, or arrange for the appointment of, a province level diphtheria control coordinator; explain the importance of establishing a provincial diphtheria control committee and distribute and explain the task lists and logistics forms.

2. Prepare for meeting with district/rayon level health officials

The provincial diphtheria control coordinator should arrange a meeting with district level health officials. The district level officials will be asked to prepare the following for the meeting:

- a list of communities and health facilities in their district;
- the latest census data down to the most peripheral level possible;
- the amount, type and function of cold chain equipment in the district (i.e. refrigerators, cold boxes, vaccine carriers, cold packs).

The provincial diphtheria control coordinator should bring to the meeting the provincial logistics form and district level logistics forms for all districts.

3. Develop a plan for social mobilization

The national diphtheria control committee should develop a general plan for social mobilization (see Section 6).

ELEVEN WEEKS BEFORE THE CAMPAIGN

1. Finalize the plan for social mobilization and calculate amounts and costs of materials

The national diphtheria control committee should decide what social mobilization materials should be developed, the quantity of each item, and the costs for these items.

TEN WEEKS BEFORE THE CAMPAIGN

1. Meeting with district level health officials

The provincial diphtheria control coordinator will meet with district health officers. During this meeting the objectives of the diphtheria campaign will be explained, and a district diphtheria control coordinator will be designated. It will be explained that a district level diphtheria control committee must be formed to organize the campaign. The calendar of activities will be distributed, and the logistics forms will be distributed and filled out as far as possible during the meeting.

2. Prepare training materials for vaccinators

The national diphtheria control committee will develop training materials for workers at vaccination posts. The suggested content of these materials is outlined in Section 5.

3. Develop mobilization materials

The national diphtheria control committee, and where appropriate, the provincial level diphtheria control committees, should create innovative brochures, posters etc.

4. Develop and print media briefing materials

The national diphtheria control committee will develop simple background materials about diphtheria and the diphtheria immunization campaign for the various news media (television, radio, newspapers), and will compile a distribution list for these materials.

5. Develop and print supervisory checklists and vaccination post reporting sheets

The national diphtheria control committee will develop and print supervisory checklists and vaccination post reporting sheets (see Annex 3 for examples).

6. Define strategies for special populations

The district diphtheria control committee will define strategies for special populations (high risk and hard-to-reach populations, see Section 7) and will designate a health officer to be responsible for organizing and supervising these special strategies.

7. Plan campaign "launch"

A highly visible event to start off the campaign, involving high level political figures and celebrities, and coverage by television and other news media should be planned. The participation of influential people should be secured as far in advance as possible.

NINE WEEKS BEFORE THE CAMPAIGN

1. Further meeting with district level coordinators

The provincial coordinating committee will meet again with the district diphtheria control coordinators to complete the provincial and district level logistics spreadsheets. The committee should ensure that calculations at both levels are consistent. Once the provincial logistics spreadsheets are finalized and consistent with each other, these data should be sent to the central level to finalize central level logistics spreadsheets.

2. Recalculate a more precise budget

The national diphtheria control coordinator will revise resource needs and budget calculations using the information from finalized provincial logistics spreadsheets, and will ensure that financial resources are adequate and that these can be accessed in a timely manner.

EIGHT WEEKS BEFORE THE CAMPAIGN

1. Training provincial level

Using prepared training materials, members of the national committee will familiarize one or two members of the provincial level committee with the training materials for vaccinators, and on how to conduct training at the district level. Training materials for the district will be distributed during this meeting. During this session, the national committee members will also verify that the province level task lists are being completed on time. Verify that sufficient vaccinators are available.

2. Print materials for social mobilization

The materials (banners, logos, brochures etc.) for social mobilization should be printed.

3. Distribute media briefing materials

The media briefing information should be sent to all names on the distribution list.

4. Meeting with vaccination post coordinators

The district diphtheria control coordinator will meet with representatives (1 per post) of all immunization posts in order to:

- explain the dates, target age groups, objectives for the campaign;
- distribute and explain the schedule of tasks and activities, and the tasklist;
- verify that all calculations regarding target populations, vaccine needs, and cold chain equipment needs are correct;

- determine if available staff are adequate;
- if additional staff are needed, discuss options for recruitment of other medical personnel and/or community volunteers;
- identify any foreseeable problems or challenges; and
- agree on a date, time, and place for the next meeting.

5. Meet with representatives of other agencies within the district

The district diphtheria control coordinator will also hold a meeting with other agencies within the district (e.g. educational establishments, major industries, police and military, and if applicable nongovernmental organizations) to explain the diphtheria campaign and enlist their support and cooperation.

SEVEN WEEKS BEFORE THE CAMPAIGN

1. Prepare training for district level

The provincial level diphtheria control committee will prepare for a training meeting with representatives of all district diphtheria control committees. Participants should bring their district checklists and logistics forms to the meeting.

SIX WEEKS BEFORE THE CAMPAIGN

1. Verify transport

Diphtheria control committees at all levels should verify availability of transport for supervision, transport of vaccine, social promotion, and strategies to reach special populations. If sufficient transport is not available within the public health sector, the committees should seek in advance for additional transport from other governmental departments, the private sector, and nongovernmental organizations.

2. Finalize logistics spreadsheets at all levels

Diphtheria control committees at all levels should finalize logistics forms and ensure that calculations at each level are consistent.

3. Distribute social mobilization materials to provinces

Social promotion materials should be distributed from the central level to the provinces.

4. Train district level

Those trained at the province level should conduct a training session with representatives of all district diphtheria control committees on issues for training of vaccinators. During the training session the trainers will verify that the district checklists are being completed on time.

5. Finalize strategies for special populations

The district diphtheria control committee should finalize its strategies for special populations.

FIVE WEEKS BEFORE THE CAMPAIGN

1. Make supervisory visits to provinces

Members of the national diphtheria control committee should make supervisory visits to the provinces to assess preparedness for the immunization campaign.

FOUR WEEKS BEFORE THE CAMPAIGN

1. Transfer vaccine, and other resources from central level to the provinces

Vaccine should be transferred from central stores to the province/oblast level stores. Other necessary supplies, such as needles and syringes, should also be shipped.

2. Train post coordinators

Members of the district level diphtheria control committee should train the vaccination post coordinators.

3. Transfer social promotion materials to the district level

Social promotion materials should be transferred from the province to the district level.

THREE WEEKS BEFORE THE CAMPAIGN

1. Verify that all media announcements are prepared

At all levels where press releases are planned, media announcements should be verified.

2. Make follow up supervisory visits to selected provinces

Members of the national diphtheria control committee should make follow up supervisory visits to selected provinces where difficulties have been identified.

3. Make supervisory visits to districts

Members of provincial diphtheria control committees should make supervisory visits to the districts to assess preparedness for the immunization campaign using standard checklists.

4. Transfer social promotion materials to the post level

Social promotion materials should be transferred from the district to the post level.

TWO WEEKS BEFORE THE CAMPAIGN

1. Transfer vaccine to district level

Vaccine and other materials should be transferred from the provincial to the district level.

2. Begin social mobilization

Social promotion should begin at the local level. Activities should include: hanging posters and distributing brochures, making house-to-house visits and making announcements in work places, schools, and other settings. Begin radio and TV announcements at national and provincial levels.

3. Begin strategies for special populations

The district and vaccination post level personnel should begin to implement planned strategies of social promotion for special populations.

ONE WEEK BEFORE THE CAMPAIGN

1. Intensify social mobilization

Social mobilization activities should be intensified at all levels.

2. Transfer vaccine and other supplies from district level to vaccination posts

Vaccine, and if necessary other supplies, should be transferred from the district level to vaccination posts.

3. Make supervisory visits to selected vaccination posts

District diphtheria control committee members should make supervisory problems to selected vaccination posts where problems in preparation might be anticipated.

CAMPAIGN

1. "Launch" campaign with a special media event

The campaign should be officially launched, with radio and television coverage, and preferably with a high level political figure to endorse the campaign. During the campaign intensive media assistance should be provided.

2. Implement strategies for special populations

(volunteers, mobile teams, and house-to-house visits).

3. Make supervisory visits to posts and teams

Members of district and higher level diphtheria control committees should visit several vaccination posts to observe the campaign, monitor activities, and assist in any way necessary. They should carry with them extra supplies such as vaccine, needles and syringes, and reporting forms.

4. Perform mid-point coverage assessment

Mid-way during the campaign, the percentage of the target vaccinated should be assessed at each vaccination post level and the results summated at the district and provincial levels. If coverage is below 45% of target, extra and intensified strategies, especially increased house-to-house visits, will be required.

FIRST DAY AFTER THE CAMPAIGN

1. **Meet with vaccination post coordinators**

District level coordinators should meet with vaccination post coordinators to evaluate the vaccination campaign.

2. **Vaccination posts report coverage and wastage to the district level**

Results of the campaign will be reported by the vaccination posts to the district level. A model reporting form is included in Annex 3c.

FIRST WEEK AFTER THE CAMPAIGN

1. **Vaccination coverage and wastage figures should be compiled at district, provincial and central levels**

2. **Return unused supplies from the post to the district level**

Unused supplies of vaccine and other supplies should be returned to the district level. In part, this is to allow for redeployment of unused vaccine to other areas for future campaigns.

3. **Meeting of district level coordinators with provincial level**

The district level coordinators should meet at the provincial level to evaluate the vaccination campaign.

4. **Respond to reports and rumors of adverse events**

Diphtheria control coordinators at all levels will respond immediately to investigate any reports or rumors about vaccine safety or adverse events following immunization.

SECOND WEEK AFTER THE CAMPAIGN

1. **Send results to central level**

By the second week after the campaign, final returns from all levels should be returned to the central level.

2. **Meeting of provincial level coordinators with central level**

The national diphtheria control coordinator should convene a meeting of provincial level coordinators in order to evaluate the campaign and find ways to improve future campaigns in other regions of the country.

FIRST MONTH AFTER THE CAMPAIGN

1. **Calculate expenditures**

The national diphtheria control committee will calculate final expenditures incurred by the campaign. This information will help with planning future campaigns.

2. Possibly conduct coverage survey in high risk areas

In some circumstances, if there is reason to doubt official reports of coverage, or if the target population of an area was difficult to estimate accurately, performing a vaccination coverage survey may be indicated, especially in regions with a high incidence of diphtheria. Such surveys can also be used to collect information on the effectiveness of social mobilization and the reasons why some targeted persons were not vaccinated.

Coverage surveys require training and additional time for implementation as well as additional funds.

4. Logistics and Cold Chain requirements

Logistics for diphtheria immunization campaigns include:

- calculating resource requirements, including: vaccines, needles and syringes, cold chain equipment, vehicles, personnel and forms
- determining how and when resources can be obtained, stored and distributed.

A standard schedule for distribution of vaccines/supplies and other tasks should be followed. Standard task lists and logistics forms should be employed and completed at each level.

4.1 *Calculating the target population*

Standard methods for calculations should be employed at all levels. Targets at each level (polyclinic/ feldsher post, rayon, oblast, national) should be agreed upon and included in the time line and training.

The two most commonly used sources of population data for estimation of the target population are:

- (i) Census data for each administrative area. If the total population is known, but not the population by age group, then the estimated fraction of the population in the target age group for the campaign can be multiplied by the total population to give the target population.
- (ii) Cumulated clinic censuses of the population in the target age group enrolled at each polyclinic or other type of primary health care facility, a "bottom up" approach. If this approach is used, it should be carefully standardized so that all clinics and regions use the same method of calculating their target population. Those not included in the target because of recent vaccination or permanent contraindications to vaccination should be also enumerated for inclusion in the denominators used to estimate overall coverage levels after the campaign (the WHO/UNICEF strategy states that those up-to-date for diphtheria vaccination with their more recent dose in the last year need not be vaccinated).

With either method, estimates should be made for additional persons who are unregistered (e.g. homeless, recent immigrants) or are registered in parallel systems (e.g. the military).

4.2 Calculating vaccine requirements

Calculate vaccination needs calculated using the following formula:

$$\text{Doses needed} = \text{target population} \times \text{wastage multiplier}$$

If the wastage rate is known from experience with previous campaigns or from normal clinic usage, then that wastage multiplier should be used. In the absence of other information, a suggested wastage multiplier is 1.3 for 10-dose vials.

Children aged 3 to 6 years should receive pediatric formulation diphtheria and tetanus toxoids (DT), and persons aged 7 years and over should receive the adult formulation (Td). If available, 20-dose vials should be specified when ordering vaccine.

4.3 Calculating requirements for needles and syringes

Calculate needles and syringes requirements using the formula:

$$\text{Number of needles and syringes needed} = \text{target population} \times \text{wastage multiplier}$$

If the wastage rate for needles and syringes is known from previous experience, then that multiplier should be used. In the absence of such information, a suggested wastage multiplier is 1.1. While in practice, wastage of needles and syringes should be minimal, this allows for underestimating the target population.

Planning should take into account the need for safe disposal of used needles and syringes (incinerator boxes, 1 box for 100 used syringes and needles). The use of autodestruct syringes should not be considered during diphtheria mass immunization campaigns (on higher costs than disposable syringes).

4.4 Cold chain requirements

DT and Td must be stored between 0° and 8° Celsius. **Special attention must be taken to avoid freezing of these vaccines, especially in winter.** Use of freeze watch indicators is recommended.

Refrigerator space

An estimate of storage space required is 1 liter per 400 doses.

More specific information should be used once more specific information is obtained from the manufacturer, and the number of doses per vial is known. For Russian manufactured vaccines in two dose vials, approximately 1 liter per 125 doses is required.

Freezer space to freeze ice packs is also needed. The number of ice packs needed depends on the delivery strategy (mobile, outreach, static points without refrigerators, etc.)

Vaccine carriers

Mobile teams usually require vaccine carriers (1 per team) and cold packs (8 per vaccine carrier – 4 in use, and 4 in the freezer for the next session).

The ice packs should be allowed to thaw until they are filled with a mixture of ice and water, which is equivalent to a temperature of 0°C. This is best shown by presence of liquid condensation on the surface of the cold packs. In any case, a layer of thick paper or other insulating material should be placed between the ice packs and the vaccine.

Wherever possible, use of ice cubes or crushed ice, as opposed to ice packs should be avoided because of the danger of freezing vaccine and also because the melting of the ice can cause vaccine vial labels to come off.

4.5 Calculating personnel requirements and length of campaign

The requirements for personnel and the number of days required to complete the campaign are related by the following formula:

$$\text{No. Days} = \frac{\text{Total target population for site}}{\text{No. vaccinators available} \times \text{No. persons they can vaccinate per day}^*}$$

*The number of persons varies according to whether the vaccinators are working at a fixed site or as part of mobile team (see below)

The length of campaign depends on availability of staff. If the number of staff qualified to administer vaccines by injection is fixed, then the duration of the campaign should be calculated according to the formula above. In some circumstances, additional medical personnel to assist with vaccination may be able to be identified, and the length of the campaign can first be chosen, followed by calculation of the number of staff required. An example follows.

Example:

The length of the campaign is chosen to be 2 weeks (and staff will work 8 hours every day of that period, i.e. 14 working days). The staff requirements per 10 000 population are calculated as follows.

Vaccination rates vary by site, e.g.:

Fixed site: Assuming that a vaccination takes 3 minutes per person, approximately 150 persons are vaccinated per day per vaccinator. In 14 days one vaccinator can then vaccinate 14×150 persons = 2100 persons.

Mobile site: Assuming that a vaccination takes 15 minutes per person, approximately 30 persons are vaccinated per day per vaccinator. In 14 days one vaccinator can then vaccinate 14×30 persons = 420 persons.

Assuming that 85% (= 8500) of the population will be vaccinated at fixed sites, and 15% (= 1500) by mobile teams, the vaccinators should be assigned as follows: At fixed sites $8500/2100 \cong 4$ vaccinators. Assigned to mobile teams $1500/420 \cong 4$ vaccinators.

For each vaccinator a minimum of two other staff will also be needed:

- 1 to 2 persons to register the person to be vaccinated and complete the record of vaccination (these could be non-medical personnel, including volunteers);
- 1 person to draw up vaccine into the syringe.

Therefore per 10 000 population, 8 vaccinators and at least 16 additional personnel. will be needed for a campaign lasting two weeks.

4.6 Other necessary supplies

Also needed to ensure correct vaccination technique are cotton wool and sterile water with which to clean the skin: The quantities required may be estimated as follows:

- cotton wool: 1 kg per 500 target population**
- sterile water: 1 liter per 200 target population.**

4.7 Transport and fuel

Transport requirements must be addressed both for the preparation, supervision and distribution phase of the immunization campaigns, and also for the campaigns themselves.

There is no simple formula for calculating transport requirements, since they will vary dramatically from country to country, and even within countries.

As the health sector alone is unlikely to have sufficient transportation resources for all needs, intersectoral collaboration is extremely important. Other resources such as other government departments, nongovernmental agencies, and the private sector should be explored. Transportation is a particular priority for remote areas.

4.8 Distribution of resources

Each level must plan how to distribute resources to the next level, and ultimately to all immunization sites. A written plan, in spreadsheet form, should be made at national and provincial level, and incorporated into logistics spreadsheets at district level.

The distribution schedule chosen depends on storage capacity at the peripheral level. If there is sufficient space available, all the needed vaccine should be transferred to the district level at once, approximately 2 weeks before the campaign begins. Vaccine should be transferred to clinics/posts 1 to 2 days before the campaign start date. If there is insufficient refrigerator space at the peripheral level to store all the vaccine for the campaign, arrangements for multiple deliveries will be needed.

4.9 Calculating training and social mobilization requirements

Planning requirements for social mobilization includes preparation and distribution of posters, pamphlets and briefing materials for the news media, and drawing up a timetable for these activities with sufficient lead time for printing and distribution. Similar considerations apply to development of training materials and implementation of training.

4.10 Returning unused supplies

Following the immunization campaign, unused supplies, especially of vaccines, should be returned to the district or provincial level for the following reasons:

- to count the remaining vaccine and supplies;
- to calculate the vaccine wastage rates; and
- to allow redistribution of vaccine to other areas for routine use or future campaigns.

5. Training

For each vaccine post, a coordinator should be trained. This person should train all staff at the post involved in the campaign. Written training materials should be prepared which address the following subjects, unless previous guidelines covering the topic have already been distributed.

1. The campaign strategy: age groups, types of vaccine.
2. Strategies for social promotion at the local level
(see Section 6)
3. Appropriate vaccine contraindications.
The WHO recommendation is that the only contraindication to diphtheria and tetanus toxoids is a severe reaction to a previous dose. Cancer or other chronic illness is not a contraindication.
4. Necessary medical screening and precautions.
It is necessary only to inquire about previous severe reactions to diphtheria and tetanus vaccine. Medical examination such as measuring body temperature or blood pressure is not required.
5. Safe injection practices.
Single use, disposable needles should be used unless staff are equipped and trained on the use of steam sterilizers and reusable needles and syringes. Guidelines to prevent staff needlestick injuries (avoidance of recapping needles, immediate depositing of needles and syringes into a needle-resistant container), and to ensure safe disposal of needles and syringes should be given.
6. The correct procedure for reporting vaccine usage, wastage, and coverage
(see Annex 3c for a model report form with calculations).
7. Information about the expected frequency of severe adverse events, and the procedure for responding to and reporting such events (see Section 9).

6. Social mobilization

Beginning at least 12 weeks before starting the campaign, a social mobilization plan should be developed. The plan should be finalized and a budget for the materials drawn up by at least 10 weeks before the campaign, to allow time for the creation, printing, and distribution of materials. The recommended time line is included in Annex 1. It is suggested that spreadsheets are used to calculate the quantities and costs of each item.

Close communication and coordination between the central diphtheria control committee and committees at provincial and district levels are necessary to avoid duplication and confusion. Community participation in both the promotion and conduct of the campaign should be encouraged. For example volunteers can assist with drawing posters, putting up posters, communicating information and with transportation for mobile teams. The social mobilization plan should include the following items:

1. Simple key messages

Simple messages about diphtheria, diphtheria immunization, and the immunization campaign should be developed in the language that the entire population can easily understand. For example:

- Diphtheria is a dangerous disease which can kill.
- Both children and adults can get the disease and can die from it.
- There is a large diphtheria outbreak in (name of country).
- The best way to prevent diphtheria is by immunization.
- Immunization is safe and effective.
- Immunization of most of the population, regardless of past vaccination history, is necessary to control the outbreak.
- The dates and times of the campaign and age groups eligible for vaccination.
- (At the local level) where to go for vaccination.

2. Seek participation of key people and groups

Increased visibility and credibility for the diphtheria immunization campaign will be attained by involving political and other leaders, and celebrities, to promote and participate in the campaign. Efforts to schedule the involvement of such persons should be made as far in advance as possible. Ways such persons can participate include:

- promoting the campaign at cultural and sporting events;
- being pictured on a poster promoting the campaign;
- conducting interviews with the news media;
- participating in the "launch" of the campaign, which should be a major event covered by the news media; and
- receiving an immunization (religious leaders).

The involvement of various organizations should also be sought, including:

- nongovernmental organizations such as Red Cross;
- women's and community groups;
- government ministries other than health, such as Education, Communications, Transportation, and Defense (if appropriate);
- private industry (transportation, banners, T-shirts etc.).

3. Distribute written and graphic materials

Posters, brochures, and banners should be designed, prepared, ordered, and distributed following a careful timetable.

4. Develop and distribute media briefing documents

Media briefing documents containing simple messages on diphtheria, the diphtheria epidemic, and the immunization campaign, similar to the ones listed above, should be developed. These materials should be distributed to radio, television, and newspapers.

5. Use the mass media

Strategies for using the mass media should be developed in conjunction with media personnel to plan the nature, timing, and frequency of announcements.

6. "Launch" the campaign with a highly visible media event involving important officials and public figures

The campaign will attract valuable publicity if it opens with a high level event, involving important officials and public figures and is covered by all the major news media. For example, the President or Minister of Health visits an immunization post and is vaccinated.

7. Strategies for special populations

"Special populations" are those populations which are considered to be at high risk for developing diphtheria or hard-to-reach with immunization services. For example:

- populations with low immunization coverage
- populations/groups with a high incidence of diphtheria
- central urban areas in many cities
- homeless and alcoholic inner city adults
- refugees and displaced persons
- recent immigrants
- transient populations, including travelers
- geographically isolated or sparse populations
- marginalized populations or minority groups

- persons living in areas affected by civil conflict.

During the immunization campaign, special efforts and planning are necessary to reach such populations, including more intense social mobilization, additional personnel, and extra transport. The specific strategies designed depend on understanding the reasons that these groups are high risk or hard-to-reach, and carefully tailoring the strategies and messages to the particular characteristics of these groups; this task will require some rapid research. At every level (national, province/oblast, district) at least one person should be designated to plan and oversee additional strategies for special populations.

Examples of such strategies include:

- Understanding the barriers which cause reduced immunization rates or increased disease rates.
- Involving local leaders of a special population in the planning, social mobilization and implementation of the campaign in their community.
- If applicable, involving and cooperating with agencies and nongovernmental agencies that work with the special population.
- If the special population is a minority group, ensuring that at least one worker or volunteer at the vaccination post or in the mobile team is from the minority group and speaks the language.
- Placing extra posts in strategic sites that are highly visible and provide easy access for the special population, such as in the neighborhood where the population lives, at bus and train stations, and at local markets.
- Using more intense social promotion, such as making more house-to-house visits before and during the campaign, possibly with the assistance of local volunteers.
- Providing greater logistical support, such as extra transport for mobile teams.

8. Monitoring and supervision

Supervision and monitoring of the preparation and conduct of the immunization campaign is an important factor for assuring success.

1. Preparation phase

Recommended supervisory visits are indicated in the time line (Annex 1). Members of the central diphtheria control committee should make supervisory visits to all provinces five weeks before the campaign, and follow up visits two weeks later to provinces with particular difficulties or questionable preparedness. Members of the provincial diphtheria control committees should make supervisory visits to the districts three weeks before the campaign, and one week in advance to selected districts. Members of the district diphtheria control committee should make supervisory visits to vaccination posts two weeks before the campaign, and if necessary, follow up visits to selected posts one week before the campaign.

During these supervisory visits during the preparation phase, the supervisors should:

- complete the supervisory checklist (an example is provided in Annex 3a);
- verify that the logistics form is complete and that there are no changes;
- verify that the tasklist is being completed on time;
- inquire about strategies for special populations, preparations to implement these strategies, and any problems or questions;
- inquire whether transport needs are met for supervision, implementing social promotion activities, and transporting vaccine;
- identify any constraints, and later work with the diphtheria control committee to overcome these constraints;
- answer any questions;
- bring extra materials, such as social promotion materials and forms, and any needed funds.

2. During the campaign

Members of the district diphtheria control committee should supervise posts during the campaign. During these visits, supervisors should:

- complete the supervisory check list (Annex 3b contains an example);
- resolve any confusion or difficulties with respect to procedures;
- provide any needed supplies;
- ensure that record keeping is being correctly carried out; and
- recognize any constraints and attempt to overcome them.

Vaccination posts should complete reports so that coverage can be assessed during the campaign. The frequency of such reports should be decided by national authorities. At least, an assessment of coverage at the mid-point of the campaign should be made. During the campaign, reporting requirements should be extremely simple, i.e.:

$$\text{Coverage} = \frac{\text{Number of persons in target age group vaccinated to date during campaign}}{\text{Total number of persons in target age group}}$$

If the result is lower than expected, additional measures must be taken to improve coverage.

3. After the campaign

Following the campaign, more detailed reports should be completed by all vaccination posts and cumulated at each level. An example is included in Annex 3c. The following data should be produced at district, provincial, and national levels:

- number of persons within the target age group(s) vaccinated during the campaign;

- number of persons outside of target age group(s) vaccinated during the campaign;
- coverage of the target age group achieved during the campaign;
- overall coverage of the population in the age group targeted during the campaign (i.e., including in the numerator in addition to those vaccinated during the campaign, those not targeted during the campaign because they had been recently vaccinated before the campaign; and including in the denominator the entire population in the specified age group living in the area, including those excluded from the campaign target for any reason);
- number of doses of each type of vaccine administered;
- number of doses of each type of vaccine wasted, and percentage of doses wasted; and
- number of doses of each type of vaccine in stock at the end of the campaign.

In addition, in order to evaluate the campaign, meetings of diphtheria control coordinators should be held at every level as soon as practicable after the campaign is over. These meetings should seek to identify procedures and policies that were effective, and to document problems and constraints. This information will be helpful both for the organization of future campaigns in the same areas or in different areas, and also for strengthening of the immunization programme in general.

9. Monitoring for vaccine adverse events

The goal of the diphtheria immunization campaign is to prevent disease and death due to diphtheria. Although modern vaccines are safe, no vaccines are entirely without risk. The majority of vaccine induced reactions are mild and temporary. In rare instances, reactions following immunizations can result in serious illnesses.

Reactions or rumors of reactions can undermine confidence in a particular vaccine product, or in immunization itself, among both the public and the medical profession. It is important that all such reports or rumors be promptly and carefully investigated, and that appropriate actions are taken to correct any programmatic errors.

Reactions can be due to:

1. Programmatic error: i.e., an error in handling or administering the vaccine.
2. Nature of the vaccine or individual response to the vaccine.
3. Coincidental association of immunization and another medical incident.
4. Unknown cause.

A medical incident occurring after immunization which is believed to be caused by the immunization itself is called an "Adverse Event Following Immunization" (AEFI).

Most AEFIs due to tetanus-diphtheria immunization are mild and transient, consisting of pain and occasionally swelling at the injection site. Occasionally, marked swelling and erythema at

the injection site, and/or fever and malaise may occur. However these reactions are transient and without permanent sequelae.

Recognized severe AEFIs attributed to tetanus-diphtheria immunization are:²

Guillain-Barre syndrome	(risk unable to be quantified, but very low)
brachial neuritis	(risk 0.5–1 case per 100 000 tetanus toxoid recipients)
anaphylactic shock	(risk unable to be quantified, but very low)

If not already established, a system and policy should be set up for reporting of and responding to serious AEFI, including use of a standard report form.³

The following events that might occur during a diphtheria immunization campaign should be reported:

1. All injection site abscesses.
2. All instances of collapse immediately following vaccination.
3. All deaths that are thought by health workers, the public, or both to be related to immunizations.
4. All cases requiring hospitalization that are thought by health workers, the public, or both to be related to immunizations
5. Other severe or unusual medical incidents that are thought by health workers, the public, or both to be related to immunizations.

Receipt of a report of a severe AEFI should be followed by prompt case investigation and the following actions:

1. Treatment of the patient.
2. Communication with the affected person or their family, and as appropriate the community and the news media, to honestly explain the cause of the AEFI (if known) and actions taken, or to explain a lack of association with immunization, and thereby dispel rumors and fears.
3. If the AEFI was due to programmatic errors, initiation of measures to improve the programme and prevent repetition of such errors.
4. Identification and removal, if necessary, of any implicated vaccine.
5. If the vaccine is being supplied by UNICEF or directly through donor agencies, the relevant agency must be promptly notified in order that it can take necessary action. The same lot of vaccine may have been distributed to several countries.

²Diphtheria and tetanus toxoids. *In: Adverse Events Associated with Childhood Vaccines: Evidence Bearing on Causality.* Institute of Medicine, Washington DC: National Academy Press. 1994; pp67-117.

³An example may be found in: *Surveillance of Adverse Events Following Immunization: Field Guide for Managers of Immunization Programmes.* WHO/EPI/TRAM/93.2

Annex 1a. Time line for planning and conduct of diphtheria vaccination campaigns - part 1

<i>Weeks before campaign</i>	>12	12	11	10	9	8	7	6	5
Prerequisites	Political commitment Est. Vaccine available Determine target pop'n Select dates Prelim. budget				Finalize budget				
Budget									
Organization	National diphtheria control coordinator & committee	Province diphtheria control coordinator & committee Central level meets with province	Prep'n for district meeting	District diphtheria control coordinator & committee Province level meets with district	Province meets with district	District meets with vaccin. post coord's			
Logistics and cold chain	Draw up schedule, task lists, logistics forms Verify vaccine delivery Begin procurement all necessary resources	Give schedule, task lists and logistics forms to province		Give schedule, task lists to district; fill logistics forms	Finalize logistics forms district ->prov ->centre			Check & finalize logistics Verify transport	
Training of vaccinators				Develop and print training materials		Train province	Prepare to train district	Train district	
Monitoring & supervision				Develop and print supervisory checklists					Superv. visit to provinces
Social promotion		Develop plan for social promotion	Finalize plan & budget	Develop promotional materials Develop media briefing materials Plan campaign "launch"		Print promotional materials Distribute briefing materials to media		Distrib. to provinces	
Special populations				Define strategies for special pop'ns (district)				Finalize strategies	

Annex 1b. Time line for planning and conduct of diphtheria vaccination campaigns - part 2

<i>Weeks before/ after campaign</i>	4	3	2	1	CAMPAIGN	1	2	3-4
Budget								Calculate expenditures
Organization							National meeting of provincial coordinators	
Logistics and cold chain	Identify personnel & cold chain equipment for mobile teams Deliver vaccine to provinces		Deliver vaccine to districts	Deliver vaccine to posts		Return unused supplies from posts to district		
Training of vaccinators	Train posts							
Monitoring & supervision		Supervise districts	Supervise posts		Supervise posts	Estimate vaccine coverage & wastage-district & province	Estimate vaccine coverage & wastage-national	Respond to reports of adverse events
Social mobilization	Distrib materials to districts	Distrib materials to vaccination posts Verify preparation of press releases	Begin social promotion Issue press releases	Intensify social promotion	Official launch of campaign Issue press releases			
Special populations			Implement strategies					

Annex 2a. Planning checklist for Diphtheria Mass Vaccination Campaigns (Central level)

Objective	Target for Completion	Due Date	Date Compl.
Establish national diphtheria control committee	≥12 weeks before campaign	_____	_____
Develop tasklists	≥12 weeks before campaign	_____	_____
Post schedule of activities	≥12 weeks before campaign	_____	_____
Develop logistics forms	≥12 weeks before campaign	_____	_____
Develop reporting form(s)	≥12 weeks before campaign	_____	_____
Meet with province/oblast health officials	12 weeks before campaign	_____	_____
Develop plan for social promotion	12 weeks before campaign	_____	_____
Finalize plan & budget for social promotion	11 weeks before campaign	_____	_____
Prepare training materials for vaccination post workers	10 weeks before campaign	_____	_____
Develop promotional materials	10 weeks before campaign	_____	_____
Develop media briefing materials	10 weeks before campaign	_____	_____
Plan campaign "launch"	10 weeks before campaign	_____	_____
Develop and print supervisory checklists	10 weeks before campaign	_____	_____
Recalculate a more precise budget	9 weeks before campaign	_____	_____
Training of provincial level	8 weeks before campaign	_____	_____
Print promotional materials	8 weeks before campaign	_____	_____
Distribute media briefing materials	8 weeks before campaign	_____	_____
Verify transport for social promotion, supervision, and vaccine transport/ vaccination activities	6 weeks before campaign	_____	_____
Check and finalize logistics	6 weeks before campaign	_____	_____
Distribute social promotion materials to the provinces	6 weeks before campaign	_____	_____
Make supervisory visits to provinces/oblasts	5 weeks before campaign	_____	_____
Transfer vaccine from central level to provinces/oblasts	4 weeks before campaign	_____	_____
Verify that all media announcements are prepared	3 weeks before campaign	_____	_____
Selected follow-up supervisory visits to provinces/oblasts	3 weeks before campaign	_____	_____
Begin social mobilization	2 weeks before campaign	_____	_____
Intensify social mobilization	1 week before campaign	_____	_____
"Launch" of campaign – media event	Campaign	_____	_____
Make supervisory visits to posts and teams	Campaign	_____	_____
Estimate vaccination coverage and wastage	2nd week after campaign	_____	_____
Meet with provincial level coordinators	2nd week after campaign	_____	_____
Calculate expenditures	3–4 weeks after campaign	_____	_____
Possibly conduct coverage survey	3–4 weeks after campaign	_____	_____

Annex 2b. Planning checklist for Diphtheria Mass Vaccination Campaigns (Province/Oblast level)

Objective	Target for Completion	Due Date	Date Compl.
Meet with national level	12 weeks before campaign	_____	_____
Establish provincial diphtheria control committee	12 weeks before campaign	_____	_____
Plan for district level meeting	12 weeks before campaign	_____	_____
Meet with district level health officials, begin logistics forms	10 weeks before campaign	_____	_____
Meet again with district health officials and complete logistics forms	9 weeks before campaign	_____	_____
Prepare vaccinator training for district level	7 weeks before campaign	_____	_____
Train district level	6 weeks before campaign	_____	_____
Verify transport for social promotion, supervision, and vaccine transport/ vaccination activities	6 weeks before campaign	_____	_____
Check and finalize logistics	6 weeks before campaign	_____	_____
Transfer vaccine from central level to provinces/oblasts	4 weeks before campaign	_____	_____
Transfer social mobilization materials from province to district	4 weeks before campaign	_____	_____
Distribute reporting form(s)	4 weeks before campaign	_____	_____
Make supervisory visits to districts	3 weeks before campaign	_____	_____
Transfer vaccine from province to district	2 weeks before campaign	_____	_____
Begin social mobilization	2 weeks before campaign	_____	_____
Intensify social mobilization	1 week before campaign	_____	_____
Make supervisory visits to posts and teams	Campaign	_____	_____
Perform mid-point coverage assessment and send results to the central level	Campaign	_____	_____
Meet with district level coordinators	1st week after campaign	_____	_____
Estimate vaccination coverage and wastage	1st week after campaign	_____	_____
Send results to the central level	2nd week after campaign	_____	_____
Attend meeting of provincial coordinators at central level	2nd week after campaign	_____	_____
Respond to reports/rumors of adverse events	1st month after campaign	_____	_____
Possibly conduct coverage survey	1st month after campaign	_____	_____

Annex 2c. Planning checklist for Diphtheria Mass Vaccination Campaigns (Rayon level)

Objective	Target for Completion	Due Date	Date Compl.
Prepare district data: target population, list of vaccination points, inventory cold chain equipment, needles, syringes and other supplies, transport, personnel	12 weeks before campaign	_____	_____
Attend province level organizational meeting	10 weeks before campaign	_____	_____
Establish district diphtheria control committee	10 weeks before campaign	_____	_____
Define strategies for special populations	10 weeks before campaign	_____	_____
Meet again with province level, complete logistics forms	9 weeks before campaign	_____	_____
Meet with vaccination post coordinators	8 weeks before campaign	_____	_____
Meet with representatives of other agencies within the district	8 weeks before campaign	_____	_____
Attend province level vaccinator training	6 weeks before campaign	_____	_____
Verify transport for social mobilization, supervision, and vaccine transport/ vaccination activities	6 weeks before campaign	_____	_____
Check and finalize logistics	6 weeks before campaign	_____	_____
Finalize strategies for special populations	6 weeks before campaign	_____	_____
Receive social mobilization materials	4 weeks before campaign	_____	_____
Train post coordinators	4 weeks before campaign	_____	_____
Transfer social mobilization materials from district to posts	3 weeks before campaign	_____	_____
Receive vaccine from province	2 weeks before campaign	_____	_____
Begin social mobilization	2 weeks before campaign	_____	_____
Begin strategies for special populations	2 weeks before campaign	_____	_____
Receive vaccine to district from provincial level	2 weeks before campaign	_____	_____
Supervisory visits to vaccination posts	2 weeks before campaign	_____	_____
Distribute report form(s)	2 weeks before campaign	_____	_____
Intensify social mobilization	1 week before campaign	_____	_____
Transfer vaccine to vaccination posts	1st week before campaign	_____	_____
Implement strategies for special populations	Campaign	_____	_____
Make supervisory visits to posts and teams	Campaign	_____	_____
Perform mid-point coverage assessment	Campaign	_____	_____
Meet with post coordinators	1 day after campaign	_____	_____
Estimate vaccination coverage and wastage	1st week after campaign	_____	_____
Attend province level meeting	1st week after campaign	_____	_____
Send results to province level	1st week after campaign	_____	_____
Respond to reports/ rumors of adverse events	1st month after campaign	_____	_____

Annex 2d. Planning checklist for Diphtheria Mass Vaccination Campaigns (Post/Clinic level)

Objective	Target for Completion	Due Date	Date Compl.
Attend meeting at district	8 weeks before campaign	_____	_____
Recruit local volunteers to assist with mobilization, transport etc.	8 weeks before campaign	_____	_____
Identify means to transfer vaccine from district to post	6 weeks before campaign	_____	_____
Plan mobile teams (if applicable) and identify personnel	4 weeks before campaign	_____	_____
Identify one vaccine carrier/small cold box per mobile team	4 weeks before campaign	_____	_____
Identify at least 4, preferably 8 cold packs per mobile team	4 weeks before campaign	_____	_____
Receive social mobilization materials from district level	3 weeks before campaign	_____	_____
Begin social mobilization activities (e.g. hang posters, make house-to-house visits)	2 weeks before campaign	_____	_____
Begin strategies for special populations (if applicable)	2 weeks before campaign	_____	_____
Intensify social mobilization activities	1 week before campaign	_____	_____
Receive vaccine and other materials from district level	1 week before campaign	_____	_____
Start immunizing!!	Campaign	_____	_____
Implement strategies for special populations (if applicable)	Campaign	_____	_____
Perform mid-point coverage calculation and send results to district	Campaign	_____	_____
Attend meeting of all post coordinators in district	1-2 days after campaign	_____	_____
Submit vaccine coverage and vaccine wastage/usage data to district (forms)	1-2 days after campaign	_____	_____
Return unused supplies to district level	1st week after campaign	_____	_____

Annex 3a. Supervisory Checklist for Planning of Diphtheria Vaccination Campaigns

Date of visit ___/___/___ Site _____

Visit to which level: (circle) Province/oblast District Clinic/Post

Name of NIDs coordinator (at level visited): _____

LOGISTICS

Is there a diphtheria control committee? Yes ___ No ___

Is the checklist up-to-date? Yes ___ No ___

Is the logistics form (spreadsheet) complete? Yes ___ No ___

Sufficient vaccine available? Yes ___ No ___

Sufficient needles and syringes available? Yes ___ No ___

Are vaccine delivery dates known? Yes ___ No ___

Ratio of vaccinators to other support staff? 1 vaccinator per _____ staff

Is additional cold chain equipment needed? Yes ___ No ___

If Yes, specify type and number.

Type	Number
Refrigerator	_____
Cold box	_____
Vaccine carrier	_____
Cold packs	_____

Is transport to collect vaccines confirmed? Yes ___ No ___

If Yes, by what means: _____

Is transport confirmed to make supervisory visits? Yes ___ No ___

Is transport confirmed for mobile teams (if applicable)? Yes ___ No ___

What is the ratio of target population to vaccinators? 1 vaccinator per _____ population

Has this level been trained? Yes ___ No ___

Has this level trained the next level? Yes ___ No ___

SOCIAL MOBILIZATION

Are local social mobilization strategies adequate? Yes ___ No ___

Are there special populations? Yes ___ No ___

If Yes, are strategies for these populations adequate and appropriate? Yes ___ No ___

Are strategies being implemented according to plan? Yes ___ No ___

Have posters and other mobilizational material been distributed to this level? Yes ___ No ___

Ask 5 health workers at this level the following 2 questions:

What are the dates of the immunization campaign No. of correct responses ___ of 5

What is the target age group for the immunization campaign No. of correct responses ___ of 5

Ask 5 members of the general public the following 3 questions:

What are the dates of the immunization campaign No. of correct responses ___ of 5

What is the target age group for the immunization campaign No. of correct responses ___ of 5

What disease is the immunization campaign against No. of correct responses ___ of 5

Problems identified during this visit:

Recommended actions to solve remaining problems (specify WHO, WHAT, WHEN, WHERE):

Name of supervisor: _____

Signature of supervisor: _____

Annex 3b. Supervisory Checklist for Diphtheria Vaccination Campaigns – Post level

Oblast _____ Date _____
 Rayon _____ Supervisor _____
 Vaccination Post _____

General

Target group for campaign correctly understood? Yes ___ No ___
 Target population figure for campaign available? Yes ___ No ___ _____ (Number)
 Overall population figure available? Yes ___ No ___ _____ (Number)
 Estimate of % of population that is "hard to reach" ? Yes ___ No ___ _____ (%)
 List of vaccine contraindications available? Yes ___ No ___
 Workers correctly understand official contraindications? Yes ___ No ___
 Vaccine doses in stock known? Yes ___ No ___
 Is this quantity: Insufficient ___ Sufficient ___ Excess ___
 All necessary supplies present? Yes ___ No ___
 Sufficient number of vaccinators? Yes ___ No ___

Cold chain/vaccine handling

If refrigerator used, vaccine stored at 0 – 8^m Celsius?
 is vaccine kept away from the evaporator plate?
 (if winter) is the room heated? Yes ___ No ___
 Yes ___ No ___ No. exposed evaporator plate ___
 Yes ___ No ___
 If cold box
 are ice packs at 0^m C (ice with some water) Yes ___ No ___
 Only 1 vaccine vial out at room temperature? Yes ___ No ___
 Are unfinished vials kept overnight and used up the next day? Yes ___ No ___ Not applicable: outreach post ___
 Are vial opening dates written on vaccine vial labels? Yes ___ No ___ [Suggestion of A.Bass – ?applic]

Vaccination practice

Single sterile disposable needle and syringe for each vaccination? Yes ___ No ___
 Needles and syringes safely disposed of after use? Yes ___ No ___
 Vaccine given by intramuscular route? Yes ___ No ___

Education/information

Adults told if further doses needed? Yes ___ No ___

Outreach

Community informed prior to campaign? Yes ___ No ___
 House-to-house visits used to mobilize community?
 Estimated % of houses visited? Yes ___ No ___
 _____ %
 House-to-house visits used to give vaccinations?
 Estimated % of target immunized at home? Yes ___ No ___
 _____ %
 Special activities for hard-to-reach population being done? Yes ___ No ___ Not Applicable ___

Comment _____

Record keeping

Vaccine in stock at beginning of day recorded? Yes ___ No ___
 Workers are recording doses administered appropriately? Yes ___ No ___
 Workers are giving vaccinees a vaccination slip? Yes ___ No ___
 Appropriate data recorded as requested by national authorities? Yes ___ No ___

Annex 3c. Sample vaccination post reporting sheet

Clinic/Post _____ District _____ Date _____

Data:	DT Vaccination	Td Vaccination
A. Age group to receive stated vaccine (DT or Td) during campaign	_____ to _____ years	_____ to _____ years
B. Total population within this age group registered in clinic	_____	_____
C. Total population within this age group that is targeted for immunization during the campaign	_____	_____
D. Number of persons within this age group that is excluded from target because they are up-to-date for immunization and received their last dose of diphtheria toxoid within the last 12 months	_____	_____
E. Number of persons within this age group that is excluded from target because of permanent vaccine contraindications	_____	_____
F. Number of persons <u>within</u> this age group, and included in the target for this post (registered in this clinic), vaccinated during campaign	_____	_____
G. Number of persons <u>within</u> age group for campaign but <u>not registered</u> in this clinic, vaccinated during campaign	_____	_____
H. Number of persons <u>outside</u> target age group for the campaign vaccinated during campaign	_____	_____
I. Doses in stock at beginning of campaign	_____	_____
J. Doses delivered during the campaign	_____	_____
K. Doses in stock at the end of the campaign	_____	_____
Calculations:		
L. Coverage of target for this age group (F+G/C) x 100	_____ %	_____ %
M. Coverage of registered clinic population in this age group (F+D)/B x 100	_____ %	_____ %
N. Vaccine doses used (I+J) - K	_____	_____
O. Vaccine doses wasted N - (F+G+H)	_____	_____
P. Percentage of vaccine doses wasted O/N x 100	_____ %	_____ %

