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**NATIONAL IMMUNIZATION DAY
PREPARATION IN TAJIKISTAN**

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ACRONYMS

BASICS	Basis Support for Institutionalizing child Survival Project
BCG	Bacillus Calmette-Guerin Vaccine
CDC	Centers for Disease Control and Prevention
DPT	Diphtheria, Pertussis, AND Tetanus Vaccine
DT	Diphtheria and Tetanus - combination vaccine for use in young children
MECACAR	Middle East, Caucasus, and Central Asian Regional
MOH	Ministry of Health
NIDs	National Immunization Days
NGOs	Non-governmental Organizations
OPV	Oral Polio Vaccine
REACH	Resources for Child Health
SES	Sanitary Epidemiology Station
Td	Tetanus and Diphtheria - combination vaccine for use in older children and adults
UN	United Nations
UNICEF	United National Children's's Fund
UNMOT	United National Military Observation/Tajikistan
USAID	United States Agency for International Development
WHO	The World Health Organization

I. EXECUTIVE SUMMARY

I visited the Republic of Tajikistan between 15 and 28 February 1995 to assist the MOH with preparation for the first round of their mass OPV immunization campaign. This campaign is a part of operation MECACAR, a Middle East, Caucasus, and Central Asian regional effort toward eradicating poliomyelitis. The two rounds for Tajikistan's 1995 NIDs are scheduled for 4 - 7 April and 11 - 14 May. This visit also included assistance on preliminary discussions regarding an immunization strategy for controlling the country's diphtheria epidemic.

In 1993 Tajikistan experienced a major outbreak of diphtheria with 678 cases including 94 deaths. In 1994, 1,907 cases with 219 deaths were reported, with a significant increase of cases in the Garm valley. According to available data, the highest age-specific incidence (23 per 100,000) occurred in children one year of age. To stop this epidemic, the MOH intends to immunize all persons in the country between three and fifty years old with a single dose of diphtheria toxoid during the second round of their OPV NID. As yet, there is neither funding nor a source of vaccine for this effort. The MOH has asked the American Embassy for assistance in this effort.

Lack of operational funds, a questionable cold chain, continuing civil disturbances, and reaching the remote mountainous areas present major obstacles for effective NIDs in Tajikistan. Government transportation at national, and certainly at the oblast and rayon levels, is not adequate for effectively carrying out all necessary preparations or for supervision. Fuel is limited and expensive. The poor communication systems within the country could affect vaccine delivery if there are any unforeseen changes with the proposed vaccine delivery schedule. Field observations during this visit, as well as discussions with UNICEF and the Republican SES do not provide much confidence in the cold chain beyond the oblast level.

Despite these problems, Tajikistan can still carry out an effective mass immunization campaign. The MOH already has experience with mass polio immunization and they have initiated planning meetings at oblast and rayon levels for this year's NIDs. The unreliable cold chain can be overcome by rapid delivery of vaccine with little time lag to immunization. Fuel supply can be available if the MOH continues to ask the government for adequate supplies for the NIDs. International organizations and NGOs can assist by providing transportation to the Republican SES for preparatory meetings. Continued negotiations between the opposition leaders and the government will help ensure a cessation of hostilities during the NIDs. The UN military observation team will assist with these negotiations.

Additional technical assistance for the NIDs can best be directed at seeking and coordinating resources, helping with solving operational problems, and assisting with implementation and supervision. A review of the first round of NIDs will be useful for making future immunization campaigns more effective and more efficient.

Even with sufficient vaccine, needles, and syringes, Tajikistan's health care system lacks the operational capability for immunizing nearly five million people with diphtheria toxoid in only a few days. Such a mass effort requires a well-defined delivery and cold chain strategy, more reliable logistics and communication, and a greater mobilization effort. Although CDC and WHO have recommended mass immunization of everyone between the ages of three and fifty, this recommendation may not suit Tajikistan where delivery capabilities are weak and donor funding has been limited. Controlling diphtheria in Tajikistan requires a timely and coordinated planning effort by the MOH, UNICEF, USAID, BASICS, and involved NGOs.

II. PURPOSE OF THE VISIT

USAID/BASICS initiated this trip to assist the Republic of Tajikistan with the preparations for Operation MECACAR, a mass polio immunization campaign involving 18 countries bordering the European and the Eastern Mediterranean regions. The purpose of MECACAR is to interrupt wild polio virus transmission and ultimately to eradicate polio. In view of the country's diphtheria epidemic, the visit also included participation in discussions on an immunization strategy for controlling the diphtheria epidemic.

III. BACKGROUND

A. The Country

The Republic of Tajikistan, surrounded by Afghanistan, China, Kyrgyzstan, and Uzbekistan occupies 143,100 square kilometers. Rugged mountains cover 93 percent of the country. The population is estimated at 5,561,431, with 10 percent (563,800) living in the capital city of Dushanbe, while 67 percent of the population live in rural areas. Approximately one-half million persons (9 percent of the population) were displaced during the 1992-1993 civil war, but most have since returned to their homes.

The rugged terrain and harsh climate pose major challenges for the cold chain, logistics, and supervision. The summer is hot and dry; the winter is cold with heavy snow fall in most areas. June through September temperatures range from 30° to 40° C, while winter temperatures range from 0° to -20° C. Temperatures vary by region and by elevation with warmer temperatures in the heavily populated valleys and the coldest temperatures in the sparsely populated mountains. Landslides and flooding occur in late spring, obstructing many major roads.

Tajikistan is administratively divided into one municipality (Dushanbe), two oblasts, one autonomous oblast, and 16 dependent rayons. The oblasts are further divided into 59 rayons or districts. Rayons, in turn, are divided into soviets. Executive councils direct the governmental affairs at each administrative level.

Living standards in Tajikistan have declined since the 1970s. This decline accelerated after the separation from the Soviet Union in 1991, and even more since the civil war in 1992-1993. Roads have deteriorated. Many health workers have left their posts. For example, the Republican SES in Dushanbe now has only five epidemiologists compared with 17 four years ago. Health workers have not been paid for many months. MOH and SES officials cannot travel because their few vehicles are not road worthy.

B. Immunization

Tajikistan began providing BCG, smallpox, and DPT immunizations in the 1950s; OPV was introduced in the 1960s. The first mass vaccination campaign with OPV was carried out in 1989. A second mass campaign was carried out in 1991 in response to an outbreak of poliomyelitis. Immunization coverage dropped dramatically during the civil war in 1992—some oblasts reported zero coverage in 1992 and many did not report at all. 1993 OPV3 coverage improved, reaching 77 percent nationally, although some rayons reported coverage as low as 19 percent. As a part of Operation MECACAR and the country's effort to eradicate poliomyelitis, the MOH scheduled two rounds of mass polio immunization of all children below the age five years in 1995, April 2 - 7 and May 11 - 14¹. (It should be noted that slightly different dates had been mentioned for the second round.)

C. Poliomyelitis

The incidence of poliomyelitis in Tajikistan has been minimal for the past two decades except for an outbreak of 111 polio cases (type 1) in 1991. Five cases were reported in 1992 and 14 in 1993. In 1993 and 1994, most cases (95 percent) occurred among children below three years of age. The ability to isolate polio virus is limited due to the poor handling of specimens and lack of training on polio virus isolation among virology laboratory staff. According to the MOH, WHO will assist with strengthening the national virology laboratory.

D. Diphtheria

Prior to 1993 few cases of diphtheria were reported. In 1993, a major outbreak began with 678 cases, including 94 deaths. Nearly 90 percent of the cases were from Dushanbe and Kurgan-Tyube Oblasts. In 1994 1,907 cases with 219 deaths were reported, with a significant increase for the dependent rayons (Garm valley). In 1994 the highest age-specific incidence (23 per 100,000) occurred in children one year old (Appendix C). Reportedly, 60 percent of the cases were children. The epidemic has spread countrywide and according to the MOH, WHO estimates that there will be 4,000 cases in 1995 unless control measures are implemented.

¹ National Plan of Action for Poliomyelitis Eradication in the Republic of Tajikistan. Ministry of Health, Dushanbe, August 1994.

To control the epidemic, the MOH plans to immunize all persons aged three to fifty years old with a single dose of DT or Td vaccine during the second round of the NIDs. Currently, there is no donor willing to purchase such a large quantity of vaccine (perhaps as much as 5,000,000 doses) or the needles and syringes required for a mass diphtheria immunization.

E. External Assistance

USAID involvement in the Republic began in March 1992 with an assessment of immunization needs by REACH/CDC. CDC noted a critical shortage of vaccines and the need to assess the cold chain. In 1993, a WHO consultant estimated that one-third of the health facilities providing immunizations in the country lacked a satisfactory cold chain. USAID/REACH provided vaccines in 1992, and cold chain equipment in 1992 and 1993. Recently, a WHO consultant from CDC helped to develop the country's national plan for poliomyelitis eradication (August 1994).

UNICEF provides all vaccines for the routine immunization of children. Although the MOH immunization schedule calls for four doses of DPT, UNICEF supplies DPT vaccine based on a three-dose schedule. Rotary International through UNICEF will supply the OPV for this year's NIDs. In 1995, UNICEF will provide 50 refrigerators, cold boxes, and thermoses for improving the cold chain at the peripheral level. This equipment is due to arrive in mid-March. Other organizations active in preventive health care include MSF/Belgium, the International Rescue Committee, and the Aga Kahn Foundation.

IV. TRIP ACTIVITIES

During the first week of the visit, I worked with BASICS consultant Dr. Sergei Deshevoi, particularly concerning the diphtheria epidemic. While in Dushanbe, I met with senior MOH and Republican SES officials. I also met with the UNICEF Country Program Representative (Johan Fagerskiold), the USAID Representative (David Morid), the Co-chairman for the Joint Committee of the Opposition, and military officials with the United Nations Military Observation/Tajikistan (UNMOT).

The BASICS consultants met with American Ambassador Stan Escudero on 21 February to discuss the MOH's request to the American Embassy to purchase vaccine and antibiotics for the diphtheria epidemic (Appendix D). The meeting, which included UNICEF staff, was also to begin coordinating diphtheria control efforts. Although invited, no MOH staff attended the meeting. Unfortunately, time was not adequate to discuss the American Embassy's involvement with negotiating a peace agreement for the NIDs.

This trip included several field visits to gain an overview on the readiness for the NIDs and to assist the Republican SES with preparatory meetings. The following places were visited: Leninoblad Oblast (Khojent), and Hissar, Varzob, Komsomolabad, Garm, and Tajikibad Rayons. NID planning meetings for rayons and health facilities were held in Khojent and Garm. The Chief

Doctor for the Republican SES, Dr. Bandisho Shoismatulloev, accompanied us to Garm, Tajikibad, and Komsomolabad Rayons. Kurgan-Tubey and Khatlon Oblasts could not be visited because we were advised not to travel to these areas without an official vehicle and neither a UNICEF nor a government vehicle were available.

V. RESULTS AND CONCLUSIONS

Although the primary purpose of this visit initially involved preparation for the NIDs, most activities led to discussions on the MOH's more immediate concern, the country's diphtheria epidemic. These two activities are summarized separately.

A. NIDs

Administrative preparations at the national level for the first round of the 1995 NIDs are well underway. The Republican SES has issued planning requirements to the oblasts and rayons which include forecasting vaccine needs, cold chain inventories, formation of outreach and supervision teams, and enumerating eligible children. Leninoblad Oblast and the rayons visited have begun preparing these requirements. The areas visited had also initiated meetings with their Executive Committees to gain both political and financial support.

Except for Leninoblad Oblast which seems well-prepared, the degree of preparation for the first round (2 - 7 April) declines the farther away from Dushanbe. The Republican SES is particularly concerned about Kurgan-Tubey and Khatlon. Unfortunately, the Republican SES cannot visit these areas or the more distant rayons for planning meetings unless they find transport. The NID in the Pamir region is being assisted by the Aga Kahn Foundation.

Lack of operational funding, the reliability of the cold chain, continuing civil disturbances, and the remote mountainous areas are major obstacles for effective NIDs. In addition, there is a fuel shortage countrywide; the cost of fuel increased 30 percent during this visit. But, even with fuel, the MOH lacks adequate transportation for attending preparatory meetings or for supervising the event. Transportation at the oblast and rayon levels is, no doubt, even worse and poor communication systems within the country could affect vaccine delivery if there are any last minute changes with the proposed delivery schedule. The MOH; the Republican, oblast, and rayon SESs; and UNICEF have requested from the government and local authorities sufficient supplies of fuel and logistics funding for the NIDs, but so far, only verbal commitments for fuel and funds have been given. Although UNICEF can assist with transportation, they have only two vehicles.

Unfortunately, the cold chain beyond the oblast level remains unreliable. According to the Republican SES, many refrigerators are out of order. They said that much of the equipment supplied to the Kurgan-Tubey and Khatlon Oblasts was looted or destroyed during the hostilities. However, inventories were not obtained during this visit, except for Kurgan-Tubey.

In the few facilities observed, refrigerators were overstocked with DPT, and in some places, measles vaccine. Quantities of disposable syringes were inadequate, especially compared with the vaccine supply. However, vaccine storage space for OPV during the NIDs was adequate. Thermometers appeared not used and unreliable. (One placed in the freezing compartment which had 4 mm of frost read as +2° C.) Although the facilities observed certainly cannot be considered representative, they are located in the better and more frequently visited areas, indicating that more distant areas are more deficient. Comments by the Republican SES and UNICEF support this assumption.

Due to the poor road conditions in May resulting from flooding and landslides, some rayons plan to conduct their first round of NIDs in early March, with the second round in April. The epidemiological implication of this approach is not clear. The Republican SES believes that because there is little population movement between these areas, the timing for their NIDs can be slightly different. Vaccine supply is adequate to carry out this schedule, if the routine supply is used and then replaced with the NID shipment.

Civil unrest, although decreased, could still hinder mass immunization activities in the south and in the Garm area. UN military observers mentioned that with their current level of staff they cannot accurately assess the locations of the hostile areas. They know of 11 mine fields in Garm Rayon, but not the mines' exact locations. The UNICEF Representative and I met with a senior member of the opposition. He agreed to assist with working toward preventing hostilities during the NIDs, however, guaranteeing such an agreement requires continued dialogue between government and opposition leaders. UNMOT offered to help ensure a truce during the NIDs through negotiations.

It is unlikely that all of the remote mountain villages can be reached during this year's NIDs. Although Republican SES and Rayon staff believe that such areas can be covered by helicopter, this approach may not be affordable or available on such a large scale. Specific plans for reaching these areas need to be developed.

Administratively, Tajikistan appears well-prepared for the NIDs; however, operational capacity for implementation and supervision is lacking. Technical assistance for the NIDs should focus on support for completing final preparations, problem-solving, coordinating resources, implementation, and supervision.

B. Diphtheria

Understandably, all discussions concerning the NIDs eventually led to the country's more immediate public health problem, the diphtheria epidemic. Although the interest in a mass diphtheria immunization campaign is strong, there is no indication that this interest will interfere with the OPV NIDs.

The MOH has an ambitious plan to immunize everyone between three and fifty years old with a single dose of diphtheria toxoid during the second round of the 1995 NIDs. Expectations for a mass diphtheria immunization are building rapidly. Several NGOs have contacted UNICEF about diphtheria toxoid and supplies for the campaign. Even with sufficient vaccine, needles, and syringes, the health care system is not yet capable of immunizing nearly five million people in only a few days. Although a generic plan has been prepared, details on logistics, cold chain needs, staff requirements, and timing have not been worked out.

As yet, no donor has come forth with financial support for diphtheria control except for the Aga Kahn Foundation for the Pamir region, which contains only 5 percent of the country's population. The MOH sent a letter to the American Embassy requesting the purchase of diphtheria toxin, antibiotics, and diphtheria antitoxin. The letter contains only general quantities of vaccine, antibiotics, and antitoxin and does not include any costs (Appendix D).

BASICS consultant Sergei Deshevoi estimated the cost for the immunization strategy recommended by WHO in the *Manual for the Management and Control of Diphtheria in the European Region*, ICP/EPI 038B. (Also see WHO/UNICEF document on diphtheria control.) This approach would immunize approximately 3,000,000 people at a cost of about \$770,000 for vaccine, needles, and syringes. Disposable auto-destruct syringes alone account for two-thirds of this cost. Treatment needs were estimated at about \$200,000 (Appendix E).

During our meeting with UNICEF, we discussed the fact that immunizing the entire population was currently beyond MOH capabilities, even if vaccines and vaccination supplies were available. We felt that if vaccine supply is limited, the first priorities are children (age groups according to amount of vaccine available) and the more densely populated and high incidence areas (Dushanbe, dependent rayons, Kurgan-Tyube, and Kulyab). We also felt that such an effort should be implemented during the next few months and completed by the end of September. School children, for example, could be immunized at the beginning of the school year in September. We agreed that the MOH, UNICEF, BASICS, and any other interested parties should establish a task force for planning and seeking resources.

In our meeting on the diphtheria epidemic with the American Ambassador which included UNICEF, the Ambassador expressed much interest, but said that the Embassy is currently without funding for such an effort. He mentioned that he will seek resources from Washington. Although we also wanted to discuss US assistance with peace negotiations for the NIDs, the Ambassador was called to another meeting. Our limited time and field work did not allow a follow-up meeting.

At this point our discussions and opinions concerning the diphtheria epidemic in Tajikistan must be regarded as preliminary. More discussions and information are needed to develop an appropriate plan. Although CDC and WHO recently recommended immunizing everyone between the ages of three and fifty years old with a single dose of diphtheria toxoid when funds are insufficient (I. Hardy's fax, 1/17/95), controlling the Tajikistan epidemic may differ from the

Ukraine and Russia epidemics on which this recommendation is based. If data are correct, the greater impact of Tajikistan's epidemic is on children (Appendix C). Ideally, one would immunize all susceptibles, but unless sufficient operational funds, vaccines, needles, and syringes are secured by May and delivery and cold chain strategies are worked out, the limitations may warrant an approach aimed more at reducing mortality among children.

C. Local Travel

Traveling outside Dushanbe by a local hire vehicle was hazardous in terms of the reliability of the vehicle and the road conditions. As mentioned, all necessary field work for this assignment could not be carried out because of the lack of appropriate transportation as official, four-wheel drive vehicles are not routinely available. Effective technical assistance for the NIDs or other future activities in Tajikistan requires field visits and consequently, more reliable transportation.

V. RECOMMENDATIONS

1. All possibilities (UNICEF, UNMOT, UNHCR, NGOs) for supporting the Republican SES with transportation for visiting oblasts and the dependent rayons for NID preparations and supervision should be explored.
2. NID technical assistance should concentrate on assisting with coordinating resources, completing final preparations, problem solving, implementation, and supervision.
3. A review of the NIDs should collect as much quantitative data as possible. (e.g., supervisory visits made, number of ice packs and number of frozen ice packs at site, date of delivery of vaccine to the site compared with days of immunization, coverage estimate with some method for determining children not registered, cold chain equipment available and status at the time of immunization at the immunization point during the NID).
4. All NID supervisors should be provided a check list with the above and other critical information (item 3 above). Unfortunately, supervision will probably be limited due to the lack of resources, especially at the rayon level.
5. A more detailed plan outlining available logistics, dates for immunization, and outreach teams for NIDs in remote areas should be prepared.
6. MOH, SES, UNICEF, USAID/BASICS, and any involved NGOs should establish a coordinating committee for diphtheria control. Any efforts on diphtheria control must also address strengthening the country's capacity to prevent and control future outbreaks.
7. A more accurate assessment of the status and needs for the most peripheral part of the cold chain is needed. (UNICEF has plans for this.)

8. As demonstrated by the cost of disposable self-destruct syringes alone for a mass diphtheria immunization campaign, a long-term, low-cost strategy for providing sterile injections should be formulated. Wider use of steam sterilizer syringe kits may be the most practical approach.

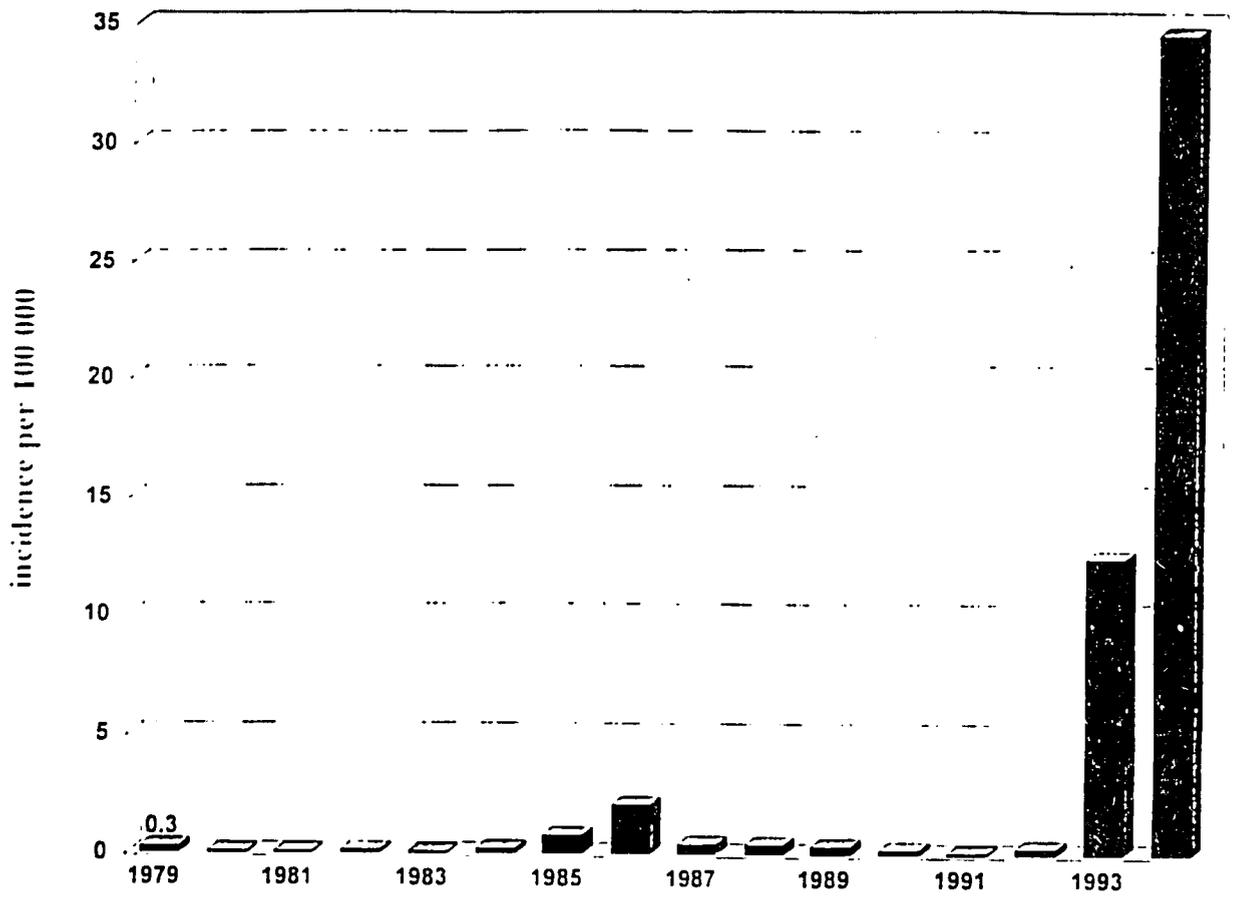
VI. FOLLOW-UP ACTIONS

1. BASICS should define the extent of its involvement in diphtheria control in Tajikistan as involvement in the NIDs draws one into the diphtheria issue. Future involvement with diphtheria control should also lead to strengthening the MOH's overall capacity for surveillance and disease control.
2. BASICS should maintain contact with the American Embassy concerning possible financial support to the MOH regarding the diphtheria epidemic. The issue of the Embassy's assistance on guaranteeing a cessation of hostilities during the NIDs needs follow-up.

APPENDICES

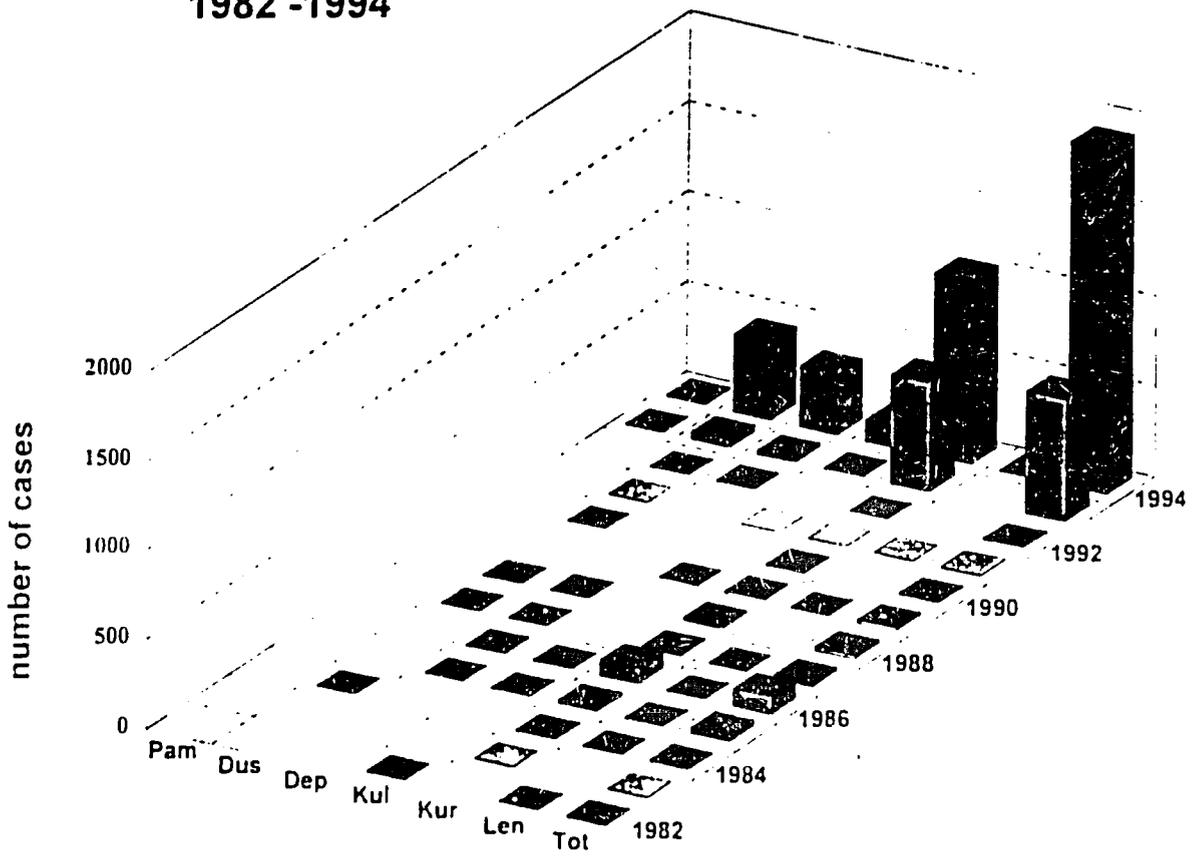
APPENDIX A
DIPHTHERIA IN TADJIKISTAN

Diphtheria in Tadjikistan



APPENDIX B
DIPHTHERIA, TADJIKISTAN: 1982-1994

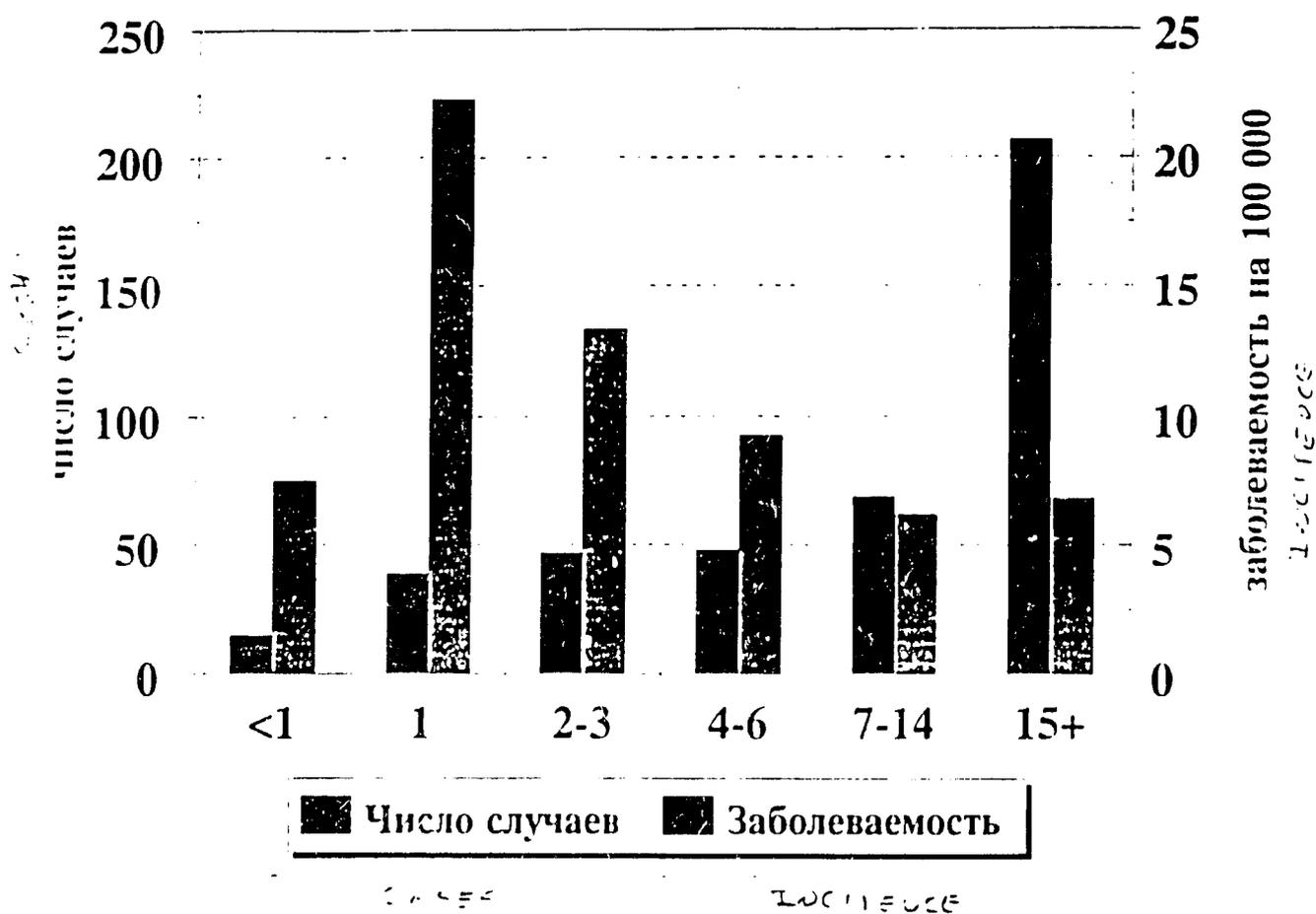
Diphtheria, Tadjikistan 1982 -1994



APPENDIX C
DIPHTHERIA IN TAJIKISTAN
(RUSSIAN LANGUAGE)

Дифтерия в Таджикистане, 1994

Возрастная структура и заболеваемость



APPENDIX D

**MINISTRY OF HEALTH LETTER
AND MEDICAL PREPARATIONS NEEDED
FOR TREATMENT AND PROPHYLAXIS
ON DIPHTHERIA CONTROL**



№ _____ ОТ _____ 1995

US EMBASSY
in DUSHANBE

The Ministry of Health of the Republic of Tajikistan presents its compliments to the US Embassy in Dushanbe and has an honour to inform it that in April-May, 1995 National Immunization Days on Polio eradication and Diphteria control will be held.

The question with Polio vaccine supply has been already solved. Polio vaccine will be delivered through UNICEF by the middle of March, 1995.

But, the Ministry has problems with diphteria vaccine supply. Outbreaks of diphteria disease in Tajikistan have been developing for already three years. In 1994 there were registered 1907 cases, including 219 deaths (205 children).

By WHO and UNICEF assessments in 1995 -- 4000 cases of diphteria disease are expected.

In this regard the Ministry requests the Embassy to consider the question of purchasing vaccines for diphteria control for Tajikistan as sooner as possible.

The Ministry avails itself of this opportunity to renew to the Embassy the assurances of its highest consideration.

MINISTRY OF HEALTH
REPUBLIC OF TAJIKISTAN

**Medical Preparations Needed
for Treatment and Prophylaxis
on Diphtheria Control**

	Treatment and vaccination of patients	Measures in areas of outbreaks	Tour Vaccination	Total
Antibiotics Penicillin or	50,400 mln units	30,000 mln units		80,000mln units
Erytromicin	84,000 gram	175,000 gram		259,000 gram
DT anatoccin	5,000 doses	25,000 doses	5,094,200	5,124,200
Diphtheria serum	210 mln units			210 mln units
Disposable Syringes (0,5 gr)	5,000 units	25,000 units	5,094,200	5,124,200

APPENDIX E
USAID/BASICS EPIDEMIOLOGIST BUDGET ESTIMATE

The budget estimated by the USAID/Basic Epidemiologist is as follows:

Group	Individuals	Vaccine	Doses	Total doses	Price/vial	Cost US\$
Vaccines						
Children 3 - 6 years	730000	DT	1	912500	1.05	47,906
7 - 16 years	1345300	Td	1	1681625	0.75	63,061
Adults *	1000000	Td	2	2500000	0.75	93,750
Patients	4000	Td	1	5000	0.75	188
Contacts	20000	Td	1	25000	0.75	938
Syringes	5124125				0.08	409,930
Antibiotics, curative			Individ.	Vials	Price	
Peni G, 14 days, times 600000 IU			2000	5600	0.4	2,240
Peni G 14 days times 1200000 IU			2000	11200	0.4	4,480
Antibiotics, prophylactic						
Benzathine Benzyl peni, 600,000 IU			30000	7500	0.4	3,000
Benzathine b p 1200000 IU			10000	5000	0.4	2,000
Serum severe cases, 60000 IU			1000	6000	10	60,000
Serum moderate cases 40000 IU			1000	4000	10	40,000
Serum mild cases, 25000 IU			2000	5000	10	50,000
Total cost						777,492

Shipment, about 25% added, will add 190,000, thus total about 970,000 US\$.

In addition to this, diagnostic kits are needed, and basic equipment, like washing spirit, cotton, etc.

* Target groups (Adults):

- Students
- Teachers for all levels
- Medical staff
- Transportation/Hotel workers
- Service workers (Post, Telegraph, police etc)
- Housewives
- Armed forces personnel
- Refugees
- Homeless and alcoholics