EMERGENCY CHILDHOOD IMMUNIZATION SUPPORT PROGRAM

TAJIKISTAN
TURKMENISTAN
KYRGYZSTAN
AND UZBEKISTAN

SUMMARY REPORT: MARCH - JUNE 1992
EMERGENCY IMMUNIZATION SUPPORT PROGRAM:
TAJIKISTAN, TURKMENISTAN, KYRGYZSTAN AND UZBEKISTAN

SUMMARY REPORT: MARCH - JUNE 1992

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ACRONYMS

BCG  Bacillus, Calmette and Guerin Vaccine
DOD  Department of Defense
DPT  Diphtheria, Pertussis, Tetanus Vaccine
DT   Diphtheria, Tetanus Vaccine
EPI  Expanded Program on Immunization
FOP  Feldsher Obstetrician (Health) Post
FSU  Former Soviet Union
IMR  Infant Mortality Rate
MOH  Ministry of Health
NIS  Newly Independent States
OFDA Office of Foreign Disaster Assistance
OPV  Oral Poliomyelitis Vaccine
REACH Resources for Child Health
SES  Sanitary and Epidemiology
UNICEF United Nations Children's Fund
USA  United States of America
USAID United States Agency for International Development
WHO  World Health Organization
I. BACKGROUND

As part of a program of humanitarian assistance to the Newly Independent States (NIS) of the former Soviet Union, the United States Agency for International Development (USAID) has allocated funds for an emergency child-immunization support effort in four Central Asian Republics -- Tajikistan, Turkmenistan, Kyrgyzstan and Uzbekistan (See Annex 1).

These states, having formerly achieved high immunization coverage levels in children, are now faced with acute shortages of vaccines and other medical consumables as well as difficulties in repair of available equipment and procurement of needed cold chain equipment. Immunization coverage rates are falling and reports of outbreaks of vaccine-preventable diseases are on the rise.

The purpose of the emergency effort is to provide selected vaccines, consumable materials, equipment and some technical assistance to ensure that children under the age of two years are immunized (with potent vaccine) against the common vaccine-preventable diseases through the end of the 1992 winter season.

The emergency immunization effort consists of three related activities. They are to:

1. Relieve short-term supply shortages and so permit immunization services to operate at full capacity.
2. Provide the minimum cold chain equipment needed to ensure immunization with potent vaccine.
3. Begin a technical exchange process that can lead to examination (and possible revision) of current immunization program policy and practice.

Together the three activities serve to "buy time" for countries to develop coordinated and comprehensive approaches to policy, supply and equipment issues.

The emergency effort is divided into three phases:

- Pre-implementation assessment
- May 1992 assistance
- Proposed September through December 1992 assistance

II. PRE-IMPLEMENTATION ASSESSMENT (7 March - 5 April 1992)

The Emergency Childhood Immunization Support Program was itself a response to an earlier assessment (Jan-Feb) of health needs in the NIS by a team from the Bureau of Food and Humanitarian Assistance which indicated that vaccine production problems within the NIS had led to greatly reduced vaccine supplies, and that this was leading to a serious reduction of immunization coverage rates for newborn children. One of the warnings of that assessment was that if low immunization coverage continued, there was the risk of increased disease incidence for the immunizable diseases (especially measles, pertussis and diphtheria, but also polio, tetanus and tuberculosis) and resulting unnecessary morbidity, suffering and even death. That assessment noted that in some areas of the Russian Federated Republic there was already evidence of increased incidence of measles, pertussis and diphtheria.

Given limited resources available for the Emergency Childhood Immunization Support Program, the relative merits of potential assistance areas were explored. It was decided in Washington that a pre-implementation visit should be carried out in, and be limited to, the Central Asian States.
A pre-implementation team composed of one member from REACH and one member from the Centers for Disease Control was engaged by the Office of Foreign Disaster Assistance (OFDA) and the Bureau of Research and Development’s Office of Health for a 4-week visit (7 March - 5 April 1992) to determine immunization program needs in the Central Asian States of the NIS, and to make recommendations to OFDA on where and how the Emergency Childhood Immunization Support Program should target its assistance. The assessment format was to visit each of the Central Asian States to explore with relevant authorities the need for, and interest in, short-term emergency immunization support, which could begin as early as May 1992.

In general the team found that immunization activities in the Central Asian States were not yet severely compromised, but that vaccine shortages were either already beginning to be felt, or would soon be felt if consignments anticipated from manufacturers in the Russian Federation failed to materialize.

In each of the states, serious shortcomings in the cold chain were noted. While the overall cold chain infrastructure was solid, with conceived strategies for distributing vaccine, there was insufficient equipment and, in some cases, knowledge, to carry out the strategies in a manner that would provide maximum protection to the vaccines being stored and transported. This was viewed as serious by the team since summer temperatures in the states routinely reach 40°C or higher. Several programs recognized the inadequacy of their cold chain during the hot periods of the year by restricting or ceasing vaccination activities during this period.

The team also found insufficient supplies of disposable syringes in each of the states. The clear preference stated by immunization program officials was for disposable syringes, but when supplies run out, the clinics switch to reusable syringes. Sterilization procedures appeared to be adequate, although many clinics were in need of improved sterilization equipment.

Specific recommendations made by the team were:

A. That all of Kyrgyzstan, Tajikistan and Turkmenistan and a small part of Uzbekistan be selected for assistance by the Emergency Childhood Immunization Support Program.

B. That specific vaccine needs be worked out for each of these states in coordination with UNICEF to assure that total vaccine needs are met for a one year cohort of newborns. This would allow each state time to get its own vaccine procurement arrangements in place and would do much to assure that on-going vaccination programs continue uninterrupted.

C. That enough disposable syringes be shipped with vaccines that are provided to assure that all the vaccines could be administered with disposable syringes.

D. That enough cold chain equipment be provided to assure that donated vaccines could be received and kept safe up to the time of administration. It might be necessary to provide vaccines in several staged shipments, given the uncertainty that vaccines could be kept safely throughout the coming summer months.

E. That steam sterilizers be provided to each of the states for the purpose of meeting short term needs, but also for the purpose of introducing this standard EPI technology to the national programs so that no harm was done by the improper reuse of disposable needles.

F. That well qualified logistics and cold chain experts be sent to each of the selected states prior to the arrival of vaccines to assure that minimum cold chain requirements were correctly anticipated and met, as necessary through the emergency assistance, in order to protect the investment in donated vaccines and to guide the procurement of additional material.
G. That a well-seasoned resident EPI expert be assigned to cover the selected Central Asian States to provide continuous monitoring and technical guidance for the emergency effort.

III. MAY ASSISTANCE (24 April - 7 June 1992)

Following the pre-implementation assessment recommendations, the May 1992 assistance consisted of three elements:

-- Shipment of emergency immunization vaccine, supplies and equipment.
-- Provision of technical support to the Ministries of Health for the receipt, distribution and organization-for-use of the emergency equipment.
-- Identification of additional immunization program needs (materiel and technical).

A. SHIPMENT OF EMERGENCY IMMUNIZATION SUPPLY AND EQUIPMENT

Immediately upon completion of the pre-implementation assessment, three categories of supply and equipment were ordered by OFDA for delivery in early May (See Annex 2 for detailed list). These were:

1. Vaccines (selected) -- to fill supply gaps and shortages.
2. Immunization supplies and equipment:
   -- to ensure sufficient disposable syringes and needles for donated vaccine.
   -- to introduce portable steam sterilizer technology.
3. Cold chain equipment -- to ensure the proper storage and transport of donated (and future) vaccine supply.

In early May, OFDA marshalled these supplies and equipment in Germany and then had them flown by charter aircraft (Turkmenistan) and Department of Defense (DOD) aircraft (three countries) to their destination.

B. PROVISION OF TECHNICAL SUPPORT

Less than three weeks after the end of the pre-implementation assessment, three immunization program specialists arrived in the former Soviet Union (FSU) to assist Ministry of Health (MOH) officials in the receipt, planning for distribution and organization-for-use of the emergency supplies and equipment. The specialists also trained personnel in the use of equipment and supply which had hitherto not been used in the NIS -- ice pack freezers, steam sterilizers, vaccine monitors, etc.

In general (with some variation between countries) receipt, distribution and organization-for-use took place as follows:

1. Receipt

   MOH officials (supported by the USAID-provided immunization specialist and Operation Provide Hope personnel) arranged airport clearance, trucks, equipment and personnel for unloading aircraft and temporary storage of the shipment. The shipments (aircraft) arrived as follows:

   -- Turkmenistan .......... 8 May
   -- Kyrgyzstan .......... 13 May
   -- Tajikistan .......... 15 May
   -- Uzbekistan .......... 15 May
2. Distribution and Organization-for-use

The MOH in discussion with the immunization specialists developed a supply and equipment distribution plan based on administrative units, population and equipment already available. The plan included the reserve, at the Republican Sanitary and Epidemiology Station (SES), of sufficient disposable syringes for use with the expected September 1992 shipment of USA-donated vaccines. All items were issued according to the distribution list and by signed "hand receipt." USAID emblems were given to regional officials to affix to the freezers and icepack freezers (Note: emblems were not affixed prior to distribution as it would have been unwise to open and weaken shipping crates before loading equipment and transport to the regions). After receipt, distribution and organization-for-use took place in the following manner:

- Immediate distribution of freezers, icepack freezers, cold boxes, disposable syringes/needles to the Republican SES and each regional SES.
- Training of MOH trainers in use of the new equipment and supplies (both cold chain and sterilization)
- (Once the Republican SES freezers were functioning) transfer of the vaccine from the temporary vaccine storage to the new freezers at the Republican SES
- Training of regional officials and staff by MOH trainers
- (As word of successful installation of freezers and icepack freezers at regional level was telephoned in) the first distribution of appropriate amounts of vaccine via cold boxes to each region through the normal vaccine distribution system
- Beginning use of the USA-donated vaccines

3. Publicity

Prior to the arrival of the shipment, the MOH in three countries placed stories in the local press regarding the imminent arrival of USA-provided immunization equipment and supply.

MOH and/or other locally arranged video-camera teams filmed aspects of the emergency immunization support program and clips were shown on television news programs in two countries.

A BBC Persian Service news item covered shipment arrival in one country.

4. Monitoring

The planning for, and monitoring of, immunization coverage is uniformly and routinely carried out at each administrative level. When a child is born it receives BCG immunization and an immunization form. This form is kept at the responsible service point and all subsequent immunizations are entered by type and date. It is these forms (plus estimated annual births) that are the basis of the annual immunization plan and basis for vaccine request.

Each month the service point reports to the district SES the number of immunizations given. These are recorded (at district level) on a monitoring form against the expected number of annual immunizations to be given by that facility. At the same
time as a service point submits the number of immunizations performed, it also submits its request for vaccines to cover the next month list of children (minus vaccine on hand). In turn the districts send coverage achievement and vaccine requests to the regional level where monitoring of district achievement is done at least on a quarterly basis.

Based on this tightly managed vaccine distribution and immunization reporting system, we can calculate that the donated vaccines will provide primary immunization to approximately 520,000 children under 2 years of age.

It is less easy to predict the date by which each donated vaccine will have been completely used. First, as there has been a chronic shortage of vaccine, there is a backlog of children requiring primary immunization (thus ensuring early use). Second, small amounts of some vaccine and normal amounts of other vaccine are presently being received from FSU suppliers. Since the USA-donated vaccines have longer expiration dates and are being stored under ideal conditions, they will be used to fill each period of shortage. Thus the donated vaccines could take longer to be used. They are expected to be used in three to five months or may last longer depending on FSU supplies.

C. ASSESSMENT OF ADDITIONAL IMMUNIZATION PROGRAM NEEDS (MATERIEL AND TECHNICAL)

In addition to assisting the MOH to receive and organize the use of the emergency supply and equipment, the three USAID-provided immunization specialists reviewed program needs with MOH officials and determined additional requirements.

The result of this review is summarized in the section below.

IV. PLANNED SEPTEMBER THROUGH DECEMBER 1992 ASSISTANCE

With the end of first phase (May) emergency assistance, which in terms of vaccine supply bought the child immunization services a few months’ reprieve, the most critical issues facing the programs are the future stock of immunization supplies (vaccines, syringes and needles), the further strengthening of the cold chain (both top and bottom) and the revision of immunization policy and practice in light of current global immunization knowledge and standards.

A. VACCINE, IMMUNIZATION SUPPLY, COLD CHAIN AND MATERIEL PRODUCTION -- COMMODITY SUPPORT

The May assistance began the process of developing an international standard cold chain in the four republics. It also addressed the urgent short-term vaccine and immunization supply needs. It is critical that the next steps in strengthening the cold chain and additional short-term support be provided.

Proposed commodity support to the four target countries, for delivery in September 1992, consists of four categories -- they are cold chain equipment, immunization equipment/supplies (including sterilizers, syringes and needles), vaccines, and technical materials (translation). On the table attached (See Annex 3) item numbers 1-12 are cold chain equipment, items 13-14 are immunization equipment/supply, item 15 is the expected vaccine requirements, and item 16 is translation costs. Final vaccine requirements will be determined in July after contact with officials in the four countries. No long-haul transport costs are expected assuming DOD transport.
ITEM JUSTIFICATION (COLD CHAIN ITEMS 1-12)

1. During May 1992, large freezers, for protection of viral vaccines, were provided to the national and regional levels in all countries excepting Uzbekistan. In Uzbekistan these freezers were provided to two regions out of thirteen. In September the eleven remaining regions will be supplied with -20°C storage capacity (NOTE: One large region will be given two freezers).

2. In addition to -20°C storage capacity, the emergency effort has given the countries and their regions an icepack freezing capability to allow transport of vaccines in cold boxes. In Uzbekistan the eleven remaining regions (those not supplied in May 1992) will be given this capacity. In addition, two icepacks freezers will be provided to the national cold chain storage facility which is presently under construction. This major facility will have five cold rooms but has no capability for the production of icepacks by which to keep vaccines in appropriate temperatures during transport.

3. The May shipment provided equipment to secure viral vaccines at the regional level. The September shipment will complete the regional cold chain by providing chest refrigerators for 0-8°C vaccine storage.

4. The May 1992 support established an appropriate cold chain for viral vaccines at national and regional levels. Given the backlog of children to be immunized, the vaccines provided in May were expected to be rapidly used and thus secure if stored in 0-8°C temperatures for short periods of time at district level. However, WHO guidelines call for viral vaccines to be stored at minus temperatures except at facility level where it is expected that vaccines will be used within thirty days. To achieve these storage conditions and to establish a system whereby vaccines in short supply can be saved and used only for the most vulnerable age groups (children who need the primary series of immunization), the September shipment will include small freezers for storage of vaccine at district level. These freezers will also permit the storage of pre-frozen (in the top of conventional refrigerators) icepacks so that sufficient packs are available for transport of vaccines to facility level.

5. There are a significant number of facilities in each country which have no means of storing vaccines—for example in Kyrgyzstan, of the 1,354 health facilities which provide child immunization, 18 have no electricity (and thus no storage capacity), 85 have no refrigerator and 21 have refrigerators which are beyond repair. The September USA emergency donation will provide some of this facility level cold chain.

6. In Turkmenistan, as mentioned in 5. above, a large number of facilities have no vaccine storage capability. Indeed, many of the health facilities are without electricity. However, this country is a producer/user of natural gas. The provision of natural gas operated refrigerators will introduce a technology which can significantly improve health service delivery in this country.

7/8. The May 1992 shipment began the provision of appropriate insulated boxes (cold boxes) for the safe transport of vaccines. The September shipment continues this development to ensure that the provided vaccines and indeed that all vaccines will arrive in potent condition.

9. The May shipment and points 7 and 8 above address the transport of vaccine to facility level. In addition, however, is the proper use of vaccine in the facility and the transport of vaccines for outreach immunization services. In the facility, vaccines must be kept cool during use—this means that they should be taken from and returned to a cool environment during the immunization session. If a
refrigerator is used for this purpose, a few openings of the refrigerator soon warms its interior to an unacceptable temperature for vaccine storage. Thus, a vaccine carrier is used during the immunization session to protect vaccines currently opened.

Often staff are expected to provide "outreach" immunization services—they are to take vaccines to a school or to a collective farm or to a herding stations where children are collected for immunization. Again vaccine must be kept cool during transport and service delivery. The small vaccine carrier permits the protection of the vaccine up to the time of use. A large number of these carriers are being provided through the September shipment.

10/11. All the transport and end use of vaccines depend on cold boxes and vaccine carriers. This equipment is useless without icepacks—icepacks are what cool the vaccines. Without them, a "cold box" is just an ordinary box. It is essential that all cold boxes and vaccine carriers come with their complement of appropriate (immunization type) icepacks and that there are sufficient spare icepacks that one set can be frozen while the other set is being used.

12. In Turkmenistan, power outage and "brown outs" are common requiring voltage stabilization for the large donated freezers and icepack freezers. Cold room thermometers are also needed for improved vaccine monitoring.

IMMUNIZATION EQUIPMENT & SUPPLY (ITEMS 13-14)

13. The Ministry of Health in Kyrgyzstan has decided to use steam sterilizers at all immunization points in the country (excepting Feldsher Obstetrician Posts) during times of disposable syringe/needle shortage. The USA May donation provided 250 sterilizers--another 120 locations will receive a steam sterilizer from the September shipment.

14. Sufficient reusable syringes and needles for the already provided steam sterilizers and the new sterilizers donated in September must be made available. The quantities now provided will permit sterilization activities for a one year period.

VACCINE (ITEM 15)

15. If current trends continue, the previous shortage of poliomyelitis and DPT vaccines will be over (for the present) and significant shortages of measles and BCG vaccines will continue. The emergency effort must respond to these changing stock positions. However, unless the time bought by the USA donations is properly used to sort out future FSU vaccine supplies, the countries will continue to require emergency support.

TECHNICAL MATERIAL TRANSLATION (ITEM 16)

16. There is a heavy demand for immunization technical documents and policy guidelines. These materials are available in the English language but need rapid translation and production in the Russian language. When made available, officials and staff will be able to quickly understand and introject international immunization standards and policy.
B. VACCINE AVAILABILITY, STANDARDIZATION AND VACCINE HANDLING AT PRODUCER LEVEL - TECHNICAL ASSISTANCE

At the top of the cold chain, no one at republic level is able to predict whether FSU vaccine production will continue, will be available in sufficient quantity and/or will be of controlled and acceptable quality. It follows that neither the republic or donor can plan well for future vaccine procurement, let alone depend on their planning.

In addition, FSU vaccine producers (and controlling Institutes) have issued directives on how to handle vaccines which are different from practices recommended by WHO for vaccines produced elsewhere. In a system where vaccines are coming from both FSU and non-FSU producers, there is an urgent need to standardize vaccine handling procedures.

Finally, the transport of vaccines from FSU producers to republic, in ordinary wood boxes (without cooling of any kind or protection of the toxoids from freezing), undermines whatever is done to improve vaccine handling (the cold chain) at the republic level and below.

PROPOSED ACTION

1. The earliest possible systematic review and assistance to vaccine production facilities in the FSU is needed. The aim would be to establish predictable and sufficient supply, ensure quality control and develop single-standard vaccine handling/use guidelines. Technical assistance would also be provided, as a matter of urgency, to develop adequate cold storage and cold transport capabilities at producer level.

2. If the review (in 1 above) results in a determination that FSU vaccine supplies would remain for some time insufficient to meet all vaccine requirements, there is an urgent need to assist republics to establish dependable and affordable alternative supply mechanisms (perhaps through UNICEF).

C. IMMUNIZATION PROGRAM POLICY AND GUIDELINES -- TECHNICAL ASSISTANCE

The immunization effort in the four countries benefits from having capable and committed officers and staff at each functional level. There appears to be a readiness to review and, if proper, revise present program policies and practices. MOH officials themselves point to two difficulties which they wish to address:

-- the denial of immunization to too many children because of an elaborate contraindication policy;
-- the conflicting guidelines for handling FSU and non-FSU produced vaccines, as regards storage times and temperature, time of use before disposal, wastage issues, etc.

In addition, the immunization schedule calls for an unusually high number of contacts, some of which may be unnecessary if high-standard vaccines and cold chain are available.

PROPOSED ACTION

1. Urgent efforts are required to make available in the Russian language technical and research publications on immunization issues. Relevant WHO/EPI publications, training materials and a revised "EPI Essentials" manual should be translated and made available in quantity.
2. Once selected research and technical materials are translated, a working seminar led by international experts in the field of immunology, immunization schedules and indication/contraindications should be held in each country. Leading MOH and Institute specialists in immunology, immunization and paediatrics would be invited to review and recommend new immunization policy and practice guidelines.

3. Once the difference between FSU and non-FSU produced vaccines are sorted out and technical materials translated, workshops in vaccine handling/cold chain issues should be held (facilitated by cold chain technical specialists). In addition, country-by-country assistance in implementation of standard cold chain management and vaccine handling procedures will be necessary to ensure optimum use of donated supply and equipment.
## ANNEX 1

### SELECTED STATISTICS

<table>
<thead>
<tr>
<th>Item</th>
<th>Tajikistan</th>
<th>Turkmenistan</th>
<th>Kyrgyzstan</th>
<th>Uzbekistan</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td>Total Population</td>
<td>5.2 million</td>
<td>3.8 million</td>
<td>4.4 million</td>
<td>21 million</td>
<td>34.4 million</td>
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<tr>
<td>Infant Population</td>
<td>203,000</td>
<td>126,000</td>
<td>131,000</td>
<td>689,500</td>
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<tr>
<td>IMR</td>
<td>46/1000</td>
<td>58/1000</td>
<td>38/1000</td>
<td>46/1000</td>
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<tr>
<td>1991 Measles Vaccination</td>
<td>79%</td>
<td>58%</td>
<td>89%</td>
<td>87%</td>
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### FACILITIES

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<tr>
<td>Feldsher-Obstetrician Posts</td>
<td>1439</td>
<td>1280</td>
<td>930</td>
<td>6546</td>
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<tr>
<td>Rural Clinics</td>
<td>458</td>
<td>44</td>
<td>191</td>
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<td>Rural Hospitals</td>
<td>164</td>
<td>137</td>
<td>461</td>
<td>762</td>
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<td>District Hospitals</td>
<td>54</td>
<td>44</td>
<td>76</td>
<td>161</td>
<td>335</td>
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<tr>
<td>Urban Polyclinics (Children)</td>
<td>35</td>
<td>22</td>
<td>40</td>
<td>1759</td>
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<td>TOTAL</td>
<td>2150</td>
<td>1,390</td>
<td>1,374</td>
<td>10,192</td>
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* Estimated
## ANNEX 2

### MAY 1992 SHIPMENT

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<tr>
<th>Item</th>
<th>Tajikistan</th>
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<tbody>
<tr>
<td>Measles Vaccine</td>
<td>121,200</td>
<td>47,000</td>
<td>97,800</td>
<td>---</td>
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<tr>
<td>BCG</td>
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<td>62,600</td>
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<td>---</td>
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<tr>
<td>DPT</td>
<td>324,800</td>
<td>168,000</td>
<td>---</td>
<td>---</td>
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<tr>
<td>OPV</td>
<td>270,700</td>
<td>140,000</td>
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<table>
<thead>
<tr>
<th>Disposable Syringe</th>
<th>2 ml</th>
<th>Tuberculosis</th>
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<tr>
<td></td>
<td>602,000</td>
<td>1,000,000</td>
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<tr>
<td>Sterilizers</td>
<td>195,000</td>
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<table>
<thead>
<tr>
<th>Sterilizers</th>
<th>Single</th>
<th>Double</th>
<th>Pads</th>
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<td></td>
<td>120</td>
<td>30</td>
<td>150</td>
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<tr>
<td></td>
<td>70</td>
<td>30</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>470</td>
<td>130</td>
<td>600</td>
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<table>
<thead>
<tr>
<th>Reusable Syringes (kits)</th>
<th>2 ml</th>
<th>Tuberculosis</th>
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<tbody>
<tr>
<td></td>
<td>240</td>
<td>60</td>
</tr>
</tbody>
</table>

| Freezer | 8 | 7 | 8 | 2 | 25 |
| Ice Pack Freezer | 8 | 7 | 8 | 2 | 25 |
| Cold Box (Large)  | 100 | 60 | 75 | 15 | 250 |
| Cold Box (Small)  | 1,050 | 600 | 800 | 100 | 2,550 |
| Ice Packs         | 4,080 | 6,120 | 3,060 | 1,000 | 14,260 |
| Thermometers      | 1,575 | 750 | 800 | 200 | 3,325 |
## ANNEX 3
### PLANNED SEPTEMBER 1992 SHIPMENT

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PIS #</th>
<th>TAJIK</th>
<th>TURK</th>
<th>KYRGYZ</th>
<th>UZBEK</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a. Large (horizontal) Vestfront Freezer. Note: same unit as delivered in May</td>
<td>E3/27?</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>1b. Spare parts for above freezer—set. Note: one set of parts listed for 10 units.</td>
<td>E3/27</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>4 sets</td>
<td>4 sets</td>
</tr>
<tr>
<td>2a. Icepack freezer Electrolux TFW 791</td>
<td>E3/26</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>2b. Spare parts</td>
<td>E3/26</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>4 sets</td>
<td>4 sets</td>
</tr>
<tr>
<td>3a. Ice line refrigerator vestfront MK302 (204 lt.)</td>
<td>E3/68</td>
<td>12</td>
<td>14</td>
<td>14</td>
<td>27</td>
<td>67</td>
</tr>
<tr>
<td>3b. Spare parts</td>
<td>E3/68</td>
<td>4 sets</td>
<td>4 sets</td>
<td>4 sets</td>
<td>6 sets</td>
<td>18 sets</td>
</tr>
<tr>
<td>4a. Vaccine freezer (188lt) vestfront</td>
<td>E3/27</td>
<td>53</td>
<td>44</td>
<td>56</td>
<td>50</td>
<td>203</td>
</tr>
<tr>
<td>4b. Spare parts</td>
<td>E3/27</td>
<td>12 sets</td>
<td>10 sets</td>
<td>12 sets</td>
<td>10 sets</td>
<td>44 sets</td>
</tr>
<tr>
<td>5a. Refrigerators, electric vestfront MK/MS 4010 (40 lt)</td>
<td>E3/75</td>
<td>62</td>
<td>20</td>
<td>106</td>
<td>--</td>
<td>188</td>
</tr>
<tr>
<td>5b. Spare parts</td>
<td>E3/75</td>
<td>14 sets</td>
<td>4 sets</td>
<td>22 sets</td>
<td>--</td>
<td>40 sets</td>
</tr>
<tr>
<td>6a. Gas/electric refrig. RCW 42 EG. Note: these units to be supplied with a rack for freezing icepacks.</td>
<td>E3/21</td>
<td>--</td>
<td>20</td>
<td>--</td>
<td>--</td>
<td>20</td>
</tr>
<tr>
<td>6b. Spare parts</td>
<td>E3/21</td>
<td>--</td>
<td>4 sets</td>
<td>--</td>
<td>--</td>
<td>4 sets</td>
</tr>
<tr>
<td>7. Large cold box, 20lt. Igloo, with icepacks. Note: should be ordered through UNICEF so as to ensure receipt of EPI-type icepacks.</td>
<td>E4/29</td>
<td>--</td>
<td>--</td>
<td>50</td>
<td>115</td>
<td>165</td>
</tr>
<tr>
<td>8. Small cold box, 4.4lt. Igloo, with icepacks. Note: Should be ordered through UNICEF so as to ensure receipt of EPI-type icepacks.</td>
<td>E4/73</td>
<td>1,256</td>
<td>790</td>
<td>574</td>
<td>--</td>
<td>2,620</td>
</tr>
<tr>
<td>9. Vaccine carrier, Model 3504/38, with icepacks.</td>
<td>E4/18</td>
<td>1,580</td>
<td>1,280</td>
<td>932</td>
<td>--</td>
<td>3,792</td>
</tr>
<tr>
<td>ITEM</td>
<td>PIS #</td>
<td>TAJIK</td>
<td>TURK</td>
<td>KYRGYZ</td>
<td>UZBEK</td>
<td>TOTAL</td>
</tr>
<tr>
<td>------</td>
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<td>-------</td>
<td>------</td>
<td>--------</td>
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</tr>
<tr>
<td>10. Icepacks (May plus September--cold box type).</td>
<td>E5/16</td>
<td>43,726</td>
<td>22,740</td>
<td>31,026</td>
<td>8,865</td>
<td>106,357</td>
</tr>
<tr>
<td>11. Icepacks (September--vaccine carrier type) Note: thermos-type.</td>
<td>Thermos</td>
<td>6,336</td>
<td>5,184</td>
<td>3,744</td>
<td>---</td>
<td>15,264</td>
</tr>
<tr>
<td>12a. Voltage stabilizer. Galatrek FF 500/4R, 0.5 KVA</td>
<td>E7/11</td>
<td>---</td>
<td>14</td>
<td>---</td>
<td>---</td>
<td>14</td>
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<tr>
<td>12b. Recording Thermometer Hyodz. AR-GT-S</td>
<td>E6/28</td>
<td>---</td>
<td>6</td>
<td>2</td>
<td>---</td>
<td>8</td>
</tr>
<tr>
<td>13a. Sterilizer, single rack, Prestige</td>
<td>E9/08</td>
<td>---</td>
<td>---</td>
<td>194</td>
<td>---</td>
<td>194</td>
</tr>
<tr>
<td>13b. Hardwater pads for sterilizer</td>
<td>E10/4</td>
<td>---</td>
<td>---</td>
<td>194</td>
<td>---</td>
<td>194</td>
</tr>
<tr>
<td>14. Reusable stringes/needles--kit A</td>
<td>E8/07</td>
<td>150</td>
<td>100</td>
<td>832</td>
<td>---</td>
<td>1,082</td>
</tr>
<tr>
<td>15a. Vaccine: Measles (Note: When ordering vaccines please specify that they be shipped with Russian language vaccine monitors (one for each 3,000 doses)).</td>
<td>in doses</td>
<td>182,000</td>
<td>---</td>
<td>140,000</td>
<td>280,000</td>
<td>602,000/d</td>
</tr>
<tr>
<td>15b. Vaccine: BCG (Note: When ordering vaccines please specify that they be shipped with Russian language vaccine monitors).</td>
<td>in doses</td>
<td>216,000</td>
<td>280,000</td>
<td>192,000</td>
<td>310,000</td>
<td>998,000/d</td>
</tr>
<tr>
<td>16. Translation</td>
<td></td>
<td></td>
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</tbody>
</table>

* Product Information Sheets