VACCINE SUPPLY PLANNING AND CHILD IMMUNIZATION POLICIES FOR CENTRAL ASIAN REPUBLICS AND KAZAKHSTAN

WORLD HEALTH ORGANIZATION
Regional Office for Europe
COPENHAGEN

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.

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VACCINE SUPPLY PLANNING AND CHILD IMMUNIZATION POLICIES FOR CENTRAL ASIAN REPUBLICS AND KAZAKHSTAN

Report on a WHO/UNICEF Meeting

Bishkek, Kyrgyzstan
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ABSTRACT

The situation of the supply of vaccines for infant immunization was reviewed, and the existence of a continuing or worsening problem of ensuring reliable supplies from producers in Russia was confirmed. Policies for the use of donated vaccines were developed and agreed on, which included confining their use to the immunization of children up to one year of age (primary immunization). Donors present at the meeting committed US $1 million to be used for procuring vaccines and cold chain equipment, the first priority being to meet immediate needs in Kazakhstan and Uzbekistan. Additional donations were expected. Proposals for the longer-term resolution of difficulties were discussed, and included a suggested project in partnership with the International Federation of Red Cross and Red Crescent Societies to assist these countries in purchasing BCG vaccine. A second proposal was for the formation of an international consortium to sustain infant immunization for the next five years. The Bishkek Declaration on infant immunization was adopted, which called for such partnerships and for cooperation to achieve self-sufficiency in vaccine supply.

Keywords

VACCINES
CHILD
IMMUNIZATION
HEALTH POLICY
HUMANITARIAN ASSISTANCE

CONTENTS

SUMMARY

The situation concerning the supply of vaccines for infant immunization was reviewed, and the problems of ensuring reliable supplies from producers in Russia were confirmed. As reported at earlier meetings, supply problems were related to drastic price increases (up to 1000% over the past 1–2 years) and difficulties in transferring payments. Because of difficulties experienced by the countries in finding adequate funds, or in transferring funds to producers in Russia, the need to maximize efficiency in the use of available supplies was evident. The following eight-point policy in the use of vaccines was therefore agreed.

1. The major impact of vaccination derives from the primary series given in the first year of life (one dose of BCG, three doses of DTP, four doses of OPV and one dose of measles vaccine) and top priority must be given to achieving high coverage with this primary series.

2. Additional doses of vaccines after the first birthday are of varying effectiveness and are of lower priority.

3. All vaccine donated should be used for immunizing infants.

4. Hepatitis B is an apparently serious problem in several of the Central Asian Republics and in Kazakhstan, but hepatitis B vaccine is costly. It is therefore recommended that an international working group review the available data and, if necessary, gather additional data so that definitive recommendations can be made about the inclusion of hepatitis B vaccine in the routine immunization programme.

5. Single-antigen mumps vaccine is of much lower priority than the global EPI vaccines. Individual republics may review whether its use is in fact helpful, and whether they could remove it from their immunization programmes.

6. Administrative, policy and logistic efforts should be made to reduce waste. Ampoules of BCG vaccine containing fewer doses would help in this regard. Every effort should be made to eliminate missed opportunities to vaccinate children.

7. Technical assistance, training, and cold chain equipment and supplies are needed in addition to vaccines.

8. Requests from countries wishing to organize national vaccination days to eliminate poliomyelitis, or requiring Td vaccine to prevent or control diphtheria outbreaks, should be so identified; these will be in addition to routine EPI immunization needs.

Kazakhstan and Uzbekistan were seen as being most in need of new donations of humanitarian support. A serious backlog of unimmunized or underimmunized children is believed to exist in Uzbekistan due to vaccine shortages in 1993, despite recent emergency donations organized by Japan, UNICEF and WHO. Before the conclusion of the meeting, donor organizations committed themselves to provide a minimum of US $1 million for direct purchase by UNICEF of vaccines or essential cold chain equipment, much of which will assist Kazakhstan and Uzbekistan through the present crisis.

For all the other countries represented at the meeting, donations to be used for vaccine delivery in late 1993 or early 1994 had already been committed. Nevertheless, many scheduled immunizations of infants were delayed, and current vaccine coverage for the primary series was much lower than normal. Advance planning to meet the needs for the middle and end of 1994 and beyond is essential.

Additional short-term support, in the form of "in kind" donations of vaccines and technical cooperation, was also offered. The donors and potential donors supported the concept proposed by WHO and UNICEF of establishing an international "consortium" to ensure that adequate vaccine supplies are available on an equitable basis in the coming years. Support for establishing proper cold chain

storage and distribution systems, and for developing self-sufficiency, are also needed. WHO and UNICEF will convene a follow-up meeting with donors early in 1994 to organize the "consortium", and to plan longer-term assistance.

Preliminary offers were made for technical cooperation:

(a) to ensure the quality of BCG vaccine manufactured in Moscow, in conjunction with a proposed project (involving the International Federation of Red Cross and Red Crescent Societies and the WHO Regional Office for Europe) to assist those countries that wished to do so to resume purchasing vaccine from this supplier;

(b) to establish projects in one or more countries that would improve approaches to the control of tuberculosis, to enhance the effect of BCG vaccination in infants;

(c) to arrange a review of the hepatitis B situation that could guide future assistance by the international community in combating the disease.

In addition, a document (the "Bishkek Declaration") was approved, affirming the commitment of all represented countries to achieving and sustaining full immunization of children, and to establish self-reliance in financing the necessary supplies of vaccines. The document will be sent to health ministers for signature.

INTRODUCTION

The WHO/UNICEF Meeting on Vaccine Supply Planning and Child Immunization Policies for the Central Asian Republics and Kazakhstan was held in Bishkek, Kyrgyzstan, from 2 to 4 November 1993. The Meeting was attended by 16 participants from the participating countries of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan, 4 temporary advisers, 10 representatives of governmental organizations, 4 representatives of nongovernmental organizations, 4 representatives of other organizations and 4 representatives of other United Nations agencies.

The plenary sessions were chaired by Dr B. Shapiro and Dr B. Hareide, while specific sessions and working groups were chaired by Dr V.N. Deviatko and Dr A.R. Hinman. The rapporteurs were Dr A.R. Hinman and Dr H. Sandblad. Annexes 2 and 3 list the working papers and background documents and the participants, respectively.

OBJECTIVES

The three main objectives of the meeting were:

(a) to assess the emergency needs for vaccines in each country so as to guide short-term decisions by donors present at the meeting;

(b) to develop policies on how to sustain immunization of children in the Central Asian Republics in the medium to long term; and

(c) to establish plans for implementing the policies recommended during the meeting.

The principle of ensuring equity of supply and use of vaccines in the participating countries was also emphasized.

COUNTRY SITUATION REPORTS

The general problems of vaccine supply were consistent in all countries.

- The price of vaccines from suppliers in Russia had increased by as much as 1000% in the past 1–2 years, and at current exchange rates were in several cases comparable to the costs of vaccines from international producers as purchased by UNICEF. These costs were difficult for the participating countries to meet.

- Even when countries attempted to send funds to producers in Russia, problems with transferring money frequently resulted in funds being returned.

- When countries introduced new currencies this further aggravated the situation.

As a result, deliveries of vaccines from Russian producers in 1993 ranged from as little as 0–10% of orders (Kazakhstan, Kyrgyzstan and Tajikistan) to a reasonable supply of some vaccines (Turkmenistan). Reported coverage rates in 1993 to date were generally poor (see Annex 1), although they were expected to improve by the end of the year.

Uncertainty about vaccine supplies in 1994 was extremely high, the situation being characterized by Kazakhstan as "catastrophic". Furthermore, it appeared that in Uzbekistan in particular a very high percentage of children had not been completely immunized in 1993 due to shortage of supplies.

A summary of known donations of vaccines appears in Annex 1. This will be updated to include deliveries from Russia as the information is reported to WHO. The only local production is BCG vaccine manufactured in Tashkent: about 150 000 sets (probably 20-dose ampoules and diluent) were produced per year, meeting almost the entire needs of Uzbekistan according to its present immunization calendar.

The issue of "need" was established as a point for discussion at the meeting. When countries described their supplies as being only a percentage of need, it was important to describe the denominator as well as the numerator: the "need" is inflated if it allows for multiple revaccination or for preventable waste of vaccine.

Specific reports from each country were requested to be handed in to the secretariat, in addition to quantitative reports on vaccine deliveries and stocks. Many items were described during these reports, indicating some variation in disease incidence. Diphtheria was not reported from Turkmenistan, but there were some increases in other countries, although far below epidemic proportions. Likewise, only isolated poliomyelitis cases were reported. Measles outbreaks had occurred in most countries. These reports would be collated at the WHO Regional Office for Europe as received, and made available on request.

PANEL PRESENTATIONS

Each panelist provided background information relevant to the working group on vaccination policies.

Tuberculosis

Professor Ludek Trnka, Director of the European Region of the International Union against Tuberculosis and Lung Disease, reported that one third of the world's population was infected with tuberculosis, and that there were 10 million new cases and 3 million deaths from the disease each year. Some 3000 million BCG vaccinations were carried out every year.

BCG protects only against serious forms of tuberculosis in young children; it does not protect against infection and does not confer lifelong protection (only about 5–6 years). In areas with a high prevalence of infection, such as the Central Asian Republics, BCG was an essential part of the control programme. In those areas, BCG should be given within the first few days of life. Only one dose is required, and it should provide protection for several years. Routine tuberculin skin testing is not required. It is possible to decide who has not been immunized as an infant by observing scar tissue. The only people who should receive additional doses of BCG are those who were not immunized and who live in high prevalence areas. BCG vaccination is only one component of a tuberculosis control programme, and the benefits of infant immunization with BCG will not be realized unless the remainder of the control programme is well organized.

Organization and cost of EPI vaccines in Malaysia

Dr Keong-Bin Ho, Assistant Director for Health Services, Ministry of Health of Malaysia, reported on basic health indicators, such as maternal and infant mortality, which had all declined greatly over the past 20 years from levels initially similar to those in the Central Asian Republics and Kazakhstan. The Malaysian vaccination programme depended on imported vaccine, and vaccine costs were met as part of government support. Decisions on the vaccination calendar therefore took account of vaccine costs. The current calendar included BCG at birth; hepatitis B at birth and at 1 and 5 months; OPV at 3, 4, 5 and 18 months; DTP at 3, 4, 5 and 18 months; and measles at 9 months. Current coverage with DTP3 and OPV3 was 92%, measles 82% and hepatitis B 87%. Disease incidence had declined dramatically. Costs of vaccines for the programme were about US $8 per child, of which US $6 was for hepatitis B vaccine.

Immunization practices in the United States of America

Dr Alan Hinman, Director of the National Center for Prevention Services, Centers for Disease Control, reported that children's immunization programme in the United States had been remarkably successful in reducing the incidence of vaccine-preventable diseases (by 90% or more) with a limited number of doses. As a result of laws requiring immunization prior to school entry, 97% or more of students were immunized against diphtheria, measles, pertussis, poliomyelitis and tetanus. Mumps and rubella vaccines were included with measles vaccine.

The United States had been less successful, however, in immunizing infants, the most appropriate target group. In fact, imunization levels in two-year-olds were estimated to be only about 50–60%. A major initiative was under way to try to raise immunization levels in infants. An important component of this had been to develop standards for paediatric immunization practice; these were developed by official health agencies in collaboration with paediatricians and other private providers. Some of the important standards required providers to use all clinical encounters to provide needed immunizations, to follow up only true contraindications, to operate a tracking system to identify children in need of immunization, and to receive ongoing education and training on current immunization recommendations. Even in the United States, cost considerations had slowed the introduction of new vaccines to the entire population. The use of hepatitis B and *Haemophilus influenzae* vaccines was increasing year by year.

Mumps vaccine use

Dr S. Jepsen, Director of the Office of International Health, State Serum Institute, Denmark, said that deliberations about the utility of mumps immunization in the Baltic states had taken place among Scandinavian experts. As in the rest of the former USSR, children had received mumps vaccine at about 1½ years of age since 1985. Coverage was approximately 75%. Although there had been a significant decrease in the incidence of the disease, a sero-epidemiological study in Lithuania had shown that 14% of young

adults and 4% of middle-aged adults were seronegative. This was the same situation as had obtained in Denmark before mumps immunization was initiated. Discussions over the cost–effectiveness of single-antigen mumps immunization led to the conclusion that it was warranted only if over 90% coverage could be guaranteed and sustained.

Incremental costs of revaccination

Dr Öztek, Professor of Public Health and Paediatrics, Hacettepe University, Turkey, reminded the participants that no vaccine schedule was ideal, and that it was important to establish priorities, needs and abilities in each country. The theoretical situation of a vaccine of 85% effectiveness in a single dose was used as an example. Presumably, administering a second dose could raise overall efficacy to 96%, but this would double the cost of vaccination. In the setting of limited resources it was necessary to decide the best use of those resources. It was most important to achieve maximum coverage in the primary series rather than revaccinating; not only was this the most cost–effective use of vaccine, but children missing the first scheduled vaccination were more likely to be hard to reach, and thus also likely to be missed during revaccination efforts.

VACCINATION POLICIES

A working group was convened after the panel presentations to discuss policies for the use of vaccines. There was widespread agreement that the primary course of immunization in the first year of life involved a dose of BCG vaccine given at birth or as soon as possible thereafter. Three doses of DTP, four doses of OPV (the first given in the newborn period) and a single dose of measles vaccine should also be administered in the first year of life. After the first birthday, approaches to the calendar of vaccination varied considerably in the different republics: the total number of doses of

BCG recommended varied from 3 to 4, that of DTP (including Td) ranged from 4 to 8, and that of OPV ranged from 6 to 8. All the republics recommend two doses of measles vaccine, four recommend routine use of mumps vaccine, and three recommend hepatitis B vaccine.

There was considerable discussion about the need for revaccination with BCG vaccine. The Central Asian Republics all had policies of revaccinating tuberculin-negative individuals. Participants disagreed about the need for revaccination, as well as about the necessity of tuberculin testing before revaccination (as opposed to using the immunization scar as an indicator of previously successful vaccination). All agreed that the most important thing was to provide the first dose of BCG to newborn babies, and that all BCG vaccine provided as humanitarian assistance should be used for that purpose.

There was also general agreement that BCG vaccination was only one component of an effective tuberculosis control programme and that there was a considerable need to improve programmes overall.

The working group agreed to a series of policies presented to the entire meeting for amendment and adoption as recommendations. The final recommendations on policies for immunization of children in Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan were thus the following.

1. The major impact of vaccination derives from the primary series given in the first year of life (one dose of BCG, three doses of DTP, four doses of OPV and one dose of measles vaccine) and top priority must be given to achieving high coverage with this primary series.

2. Additional doses of vaccines after the first birthday are of varying effectiveness and are of lower priorityl

3. All vaccine donated should be used for immunizing infants.

4. Hepatitis B is an apparently serious problem in several of the Central Asian Republics and in Kazakhstan, but hepatitis B vaccine is costly. It is therefore recommended that an international working group review the available data and, if necessary, gather additional data so that definitive recommendations can be made about the inclusion of hepatitis B vaccine in the routine immunization programme.

5. Single-antigen mumps vaccine is of much lower priority than the global EPI vaccines. Individual republics may review whether its use is in fact helpful, and whether they could remove it from their immunization programmes.

6. Administrative, policy and logistic efforts should be made to reduce waste. Ampoules of BCG vaccine containing fewer doses would help in this regard. Every effort should be made to eliminate missed opportunities to vaccinate children.

7. Technical assistance, training, and cold chain equipment and supplies are needed in addition to vaccines.

8. Requests from countries wishing to organize national vaccination days to eliminate poliomyelitis, or requiring Td vaccine to prevent or control diphtheria outbreaks, should be so identified; these will be in addition to routine EPI immunization needs

VACCINE SUPPLIES AND FINANCING

This area was discussed in a second working group, and at follow-up sessions of the meeting.

Proposal from the International Federation of Red Cross and Red Crescent Societies (IFRC) to assist in the purchase of BCG and possibly oral poliomyelitis vaccines

Dr H. Sandblad, representing the Moscow regional delegation of the International Federation of Red Cross and Red Crescent Societies, described a proposal developed in conjunction with the WHO Regional Office for assisted purchase of BCG and perhaps OPV vaccines from producers in Moscow. The Federation was concerned over the reduction of vaccination coverage in the former USSR. The Federation wanted to facilitate ordinary purchasing mechanisms by the following means.

- Vaccines would be bought at central level in Moscow at an agreed price, preferably significantly lower than the UNICEF price. International donors would be needed.

- The Federation would work with producers to organize suitable transport to the republics concerned.

- In practice, the vaccines would be donated by the Federation to the national Red Cross or Red Crescent Society in the country, which would hand them over to the Ministry of Health. The Ministry of Health would pay the national society an amount in local currency equivalent to the purchase price.

This was proposed as a temporary measure, aimed at facilitating normal purchase procedures that were now failing. Desired outcomes would include stimulation of local production, improved quality assurance procedures by the producer and the national control authority, establishment of cold chain transport from producer to recipient country, and help to ensure full, basic vaccination of children in the former USSR. After discussions involving the Deputy Directors of the institutes in Moscow producing BCG and oral poliomyelitis vaccines, and comments from representatives of the participating countries, draft memoranda

describing the proposals were distributed for review by the participating countries.

After further discussions throughout the meeting, Kyrgyzstan, Tajikistan and Turkmenistan confirmed their interest in pursuing the IFRC proposal for obtaining BCG vaccine. They, and Uzbekistan, also expressed interest in pursuing the possibility of obtaining OPV in a similar manner. Kazakhstan was not represented at these discussions and would be contacted.

New source of WHO-approved measles and possibly DPT vaccines

The recent WHO approval of measles and possibly DPT vaccines from a private producer in India was described, as such vaccines might in future be distributed through UNICEF. This appeared to be the least costly source at present. Participants had the opportunity to question a representative of the producer on issues such as vaccine potency and clinical data on its use. The measles vaccine from India represented the first WHO-approved product from a developing country, and India would be pleased to be a supplier and establish with the newly independent countries the friendly relationship that had previously existed with the USSR.

Roles of donor countries in providing vaccines and other support

The interests were described of the different countries and organizations present were described, including Denmark, Japan, Norway, Taiwan, Turkey and the United States.

Denmark could provide technical assistance from the Ministry of Health, through the State Serum Institute. Norway could also provide technical support, and was seeking donations to supply vaccines within the region. Taiwan was learning about the region for the first time, and was interested in providing technical and material assistance. Turkey had already given more than US $2 million in medicines to the Central Asian Republics, and expected to support immunization activities. The United States was a partner with Japan, which had already pledged US $4 million in 1993 for vaccine assistance in the former USSR (except Russia), of which about three

quarters had so far been committed. The American contribution comprised technical assistance and some cold chain items. Among the countries at the meeting, Kyrgyzstan and Turkmenistan were recipients of support from the Japanese–American project. Japan had also provided an emergency donation of vaccines for Kazakhstan, Kyrgyzstan and Uzbekistan in August via UNICEF and WHO.

Other actual or potential donors existed who were unable to be represented at the meeting, including the Netherlands and Sweden.

Roles of multinational organizations

The International Union against Tuberculosis and Lung Disease (IUATLD) was very interested in working with the Central Asian Republics to establish pilot projects on tuberculosis control.
The Director-General of IUATLD would be sending letters to Minister of Health inviting their countries to join the Union.

The newly formed East European PoliPlus Committee of Rotary International was interested in helping achieve eradication of poliomyelitis. Strong partnerships between Rotary International, UNICEF, WHO and national governments since the beginning of the eradication initiative had been very effective. Rotarians around the world had given time and donations in kind, in addition to the substantial sums given by Rotary for vaccine purchase and technical assistance. Rotary looked forward to concrete proposals from the republics for EPI vaccines (particularly OPV) and was anxious to participate in WHO-recommended strategies for poliomyelitis eradication. If active eradication efforts (especially "mop-up" operations) were to be carried out in the Central Asian Republics (and Azerbaijan), Rotary would be anxious to help.

THE BISHKEK DECLARATION

A draft Declaration was discussed in two plenary sessions and the final versions, in English and Russian, accepted. The Declaration would be sent in final form to each Ministry of Health for signature.

INTERNATIONAL DONATIONS

Based on information developed at the meeting, the most essential needs were believed to include vaccines and a minimum of new national vaccine cold stores for Kazakhstan and Uzbekistan. The representative of the Government of Japan offered a total of US $800 000 to purchase urgently needed items for each of these countries.

The Taiwanese delegation offered to provide US $200 000 to UNICEF to use for vaccines and related needs.

The Turkish delegation committed itself to providing DPT and measles vaccines through UNICEF, the amounts to be determined later.

Other support was being sought, for example in Norway. The United States had already committed US $500 000 to UNICEF for use in Tajikistan, which would enable vaccines to be obtained.

FUTURE INTERNATIONAL COOPERATION

Preliminary discussions were held on a proposal from WHO and UNICEF to establish a "consortium" of donors to collectively meet the vaccine, cold chain, syringe and other needs of the Central Asian Republics and Kazakhstan. Such support was necessary since the general budget of UNICEF authorized for support in each country was only $1 million per country per year, for all purposes. This was not enough to purchase vaccines, and donations were therefore needed.

It was agreed that a follow-up meeting of donor organizations should be held in the first quarter of 1994, where terms of reference and working procedures for an international group to cooperate in supporting children's immunization activities would be defined. In addition, follow-up action to stabilize the vaccine supply and provide other assistance for 1994 needed to be agreed at that time if possible.

Annex 1

VACCINE COVERAGE RATES

Provisional reports of vaccine coverage rates for the primary series of infant immunizations, 1 x BCG, 3 x DPT, 1 x measles, and 3 x OPV (noted from verbal presentations in the case of Kyrgyzstan and Turkmenistan, and written reports from Kazakhstan, Tajikistan and Uzbekistan) are as follows, in percentages.

Vaccine	Kazakhstan[a]	Kyrgyzstan[b]	Tajikistan[c]	Turkmenistan	Uzbekistan[a]
BCG	92	29	90	71	98
DPT	86	35	87	57[d]	40
Measles	87	45	85	73	90
Poliomyelitis	76	54	90	60	20

[a] Kazakhstan and Uzbekistan: complete primary series for children under 1 year.
[b] Kyrgyzstan: data are for children under 2 years.
[c] Tajikistan: data are for first dose only, in children under 1 year.
[d] Includes 24% with DPT, 33% with DT.

It should be noted that these are not definitive values, and the definition of "coverage" is not clear in most cases. Reasons for low coverage include primarily the problems experienced in arranging supplies of vaccines ordered from manufacturers in Russia.

1992, when problems were already developing. There are then inherent delays in organizing programmes of international assistance after the recognition of shortages in deliveries from Russia.

Other factors in low coverage rates for infants include the fact that not all humanitarian donations have been used for primary immunization, but may have been used for revaccination in older children or adults.

The continuing deliveries of vaccines to Kyrgyzstan and Turkmenistan by the United States and UNICEF, primarily paid for by the Government of Japan, may result in an increase in overall coverage rates when final figures are available for 1993. Much work remains to be done to rationalize the planning of vaccine delivery and use in order that during 1994 high vaccine coverage of infants is assured.

Annex 2

WORKING PAPERS AND BACKGROUND DOCUMENTS[a]

Working papers

ICP/EPI 030(G)/6	International project to sustain infant immunization in Central Asian Republics of the Former USSR, by E. Birerdinc and A.P. Kendal
ICP/EPI 030(G)/7	Bishkek Declaration
ICP/EPI 030(G)/8	Presentation on Tajikistan

Background documents

ICP/EPI 030(B)	Conclusions and recommendations of the Meeting on Vaccine Supply in NIS, Copenhagen, 18–20 March 1993
ICP/EPI 030(B)/9	A perspective on partnerships in vaccine supply for NIS. Presentation by A.P. Kendal at the Meeting on Vaccine Supply in NIS, Copenhagen, 18–20 March 1993
	Immunization of children in the USA, by A. Hinman
	Vaccine needs and donations in NIS 1993, by A.P. Kendal
	WHO contraindications for vaccines used in EPI. Reprint from *WHO weekly epidemiological record*, 37, 279–281 (1988)
	Side effects following immunization and contraindications for vaccines used in Expanded Programme on Immunization, by Dr S. Dittmann
	Present situation of BLG vaccine in the world and in Europe, by L. Trnka (Russian only)

[a] Copies can be obtained from the CEE/V unit, WHO Regional Office for Europe, Scherfigsvej 8, DK-2100 Copenhagen Ø, Denmark.

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