PN-ABZ-302
91897

DIPHTHERIA CONTROL IN THE REPUBLIC OF MOLDOVA

Follow Up Visit 19 February - 13 March 1996
Additional Follow Up via Internet

12 June 1996

Allan G. Bass

BASICS Technical Directive: 000 MD 01 126
USAID Contract Number: HRN-6006-C-00-3031-00

TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS

EXECUTIVE SUMMARY 1

INTRODUCTION 1

DIPHTHERIA CASES 1

SOCIAL MOBILIZATION 4

SUPPLIES 5
- Syringes 5
- Antibiotics 5
- Vaccines 6

EQUIPMENT 6
- Freezing of Toxoid Vaccines 6
- Refrigerator Development and Production 7

NATIONAL POLICY AND PLANS 7

MULTISECTORAL COOPERATION 8

DONOR COORDINATION 8
- Diphtheria Campaign 8
- General Coordination 9
- International Coordination 9

DIPHTHERIA CONTROL ACTIVITIES: 1996 - 1997 10

RECOMMENDATIONS 10

APPENDICES

- Appendix A: Brief for Dr. Mikhai Magdei, Deputy Minister of Health
- Appendix B: Diphtheria Cases January 1994 - April 1996
- Appendix C: Diphtheria Immunization Coverage 1995
- Appendix D: Projected Vaccine Requirements 1996
- Appendix E: An Analysis of the Situation Regarding Diphtheria: RSES - UNICEF
- Appendix F: Consultant Scope of Work and Draft Cable of March 1996

ACRONYMS AND ABBREVIATIONS

Amb	Ambulatorio: Ambulatory Care Clinic (same as SVA)
BASICS	Basic Support for Institutionalizing Child Survival
BCG	Anti TB vaccine (Bacillus Calmette-Guerin)
Cohort	Group of children with the same particular attribute
CIE	Centrul de Igiena si Epidemiologie (same as SES)
CRIE	Centrul Republican de Igiena si Epidemiologie (former name for RSES)
CRS	Congenital Rubella Syndrome
CSAHE	Center for Scientific and Applied Hygiene and Epidemiology (successor to RSES -- the national public health organization)
Di	Diphtheria vaccine; not available from UNICEF
DPT or DTP	Diphtheria, Pertussis and Tetanus Vaccine
DT	Diphtheria and Tetanus vaccine
DT-M	Russian description of Td: modified diphtheria (reduced component) and tetanus vaccine
ECHO	European Community Humanitarian Office
EPI	Expanded Programme on Immunization
EURO	WHO's Regional Office for Europe (in Copenhagen)
FAP	Feldsher and Patronage Nurse Station (same as PM)
FIC	Fully Immunised Child
Freeze Watch	A heat sensitive indicator which indicates temperatures below -4°C
GOM	Government of Moldova
Hb	Hepatitis B Vaccine
IEC	Information, Education, Communication
MIS	Management Information System
MMR	Mumps, Measles and Rubella Vaccine
NBC	Newborn Children
NGO	Non-governmental Organization
OPV	Oral Polio Vaccine
Peri-urban	PMs or FAPs in the area around the Raion which are supplied directly by the Raion SES, not by an SC or an Amb (cluster headquarters)
Policlinic	The largest out-patient facility
Primary doses	All immunizations given before the first dose for revaccination (booster dose)
Poli	Abbreviation for Policlinic
PIS	WHO/UNICEF Product Information Sheets

PM	Punct Medical (same as FAP): the smallest health facility staffed by a male paramedic and an obstetric nurse responsible for domicillary services. Some only have a Feldsher.
Raion	An administrative sub-division, equivalent to a District.
RSES	Republican Sanitary and Epidemiological Station (former name for CSAHE)
SC	Spital de Circumscriptie: rural hospital at sub-district level (same as SUB)
SES	Sanitary and Epidemiological Station (same as CIE) (the Public Health Headquarters)
SUB	Rural hospital at sub district level (same as SC)
SVA	Ambulatory Care Clinic (same as Amb)
TB	Tuberculosis
Td	Diphtheria (reduced component) and Tetanus Vaccine
TT	Tetanus Toxoid
TTM	Tiny Temperature Monitor
UNICEF	United Nations Children's Fund
UNIPAC	United Nations Procurement Center
USAID	United States Agency for International Development
WHO	World Health Organization

EXECUTIVE SUMMARY

The situation regarding vaccine preventable diseases, particularly diphtheria, in the Republic of Moldova continues to be serious. However, recent signs have shown more effective control of these diseases.

A mass immunization campaign began in November 1995 and the use of antibiotics to treat cases and their contacts began in late November and early December 1995. With the exceptions of the provision of syringes for immunization and antibiotics for both case management and primary contact prophylaxis, diphtheria control campaign preparations were well advanced by the summer of 1995. Local cooperation between international and bilateral donors was established at an early stage. National policies, strategies, and operational plans had been developed and put in place in May through July 1995. In September through October 1995, information, education and communications (IEC) materials had been developed and prepared for the social mobilization aspects of the campaign.

Syringes for the mass immunization campaign funded by ECHO under the United Nations appeal for Moldova were delivered in an airlift on 3 November 1995. The campaign was launched by the Minister of Health in the presence of the national media on the arrival of the syringe airlift. UNICEF provided antibiotics arrived in Moldova in November 1995 allowing full implementation of the international and national strategy of immunization of the population and treatment of cases and contacts. This has paid off with a sharp and sustained 12 fold decline in the number of new diphtheria cases during the period of November 1995 through April 1996. Many of the cases occurring in early 1996 were in closed institutions and low immunization coverage areas. Special intensified efforts to deal with these cases were agreed.

The continuing success of this effective diphtheria control campaign in Moldova owes much to the major system-wide changes in the operation of Moldova's national immunization program and the unexcelled coordination between the GOM, UNICEF and BASICS/USAID on the ground in Moldova. Many useful lessons remain to be learned from this effective model.

INTRODUCTION

The situation regarding vaccine preventable diseases, particularly diphtheria, in the Republic of Moldova continues to be serious. However, recent signs have shown of more effective control of these diseases. Disease transmission continued through the summer and autumn of 1995.

A mass immunization campaign began in November 1995 and the use of antibiotics to treat cases and their contacts began in late November and early December 1995. With the exceptions of the

provision of syringes for immunization and antibiotics for both case management and primary contact prophylaxis, diphtheria control campaign preparations were well advanced by the summer of 1995. Local cooperation between international and bilateral donors was established at an early stage. National policies, strategies, and operational plans had been developed and put in place in May through July 1995. In September 1995 collaboration arrangements with local non-governmental organizations had been agreed. In September through October 1995, information, education and communications (IEC) materials had been developed and prepared for the social mobilization aspects of the campaign.

While an initial supply of anti-diphtheria vaccines arrived in Moldova in July, August, September, and October 1995, syringes were in short supply, preventing early immunization of the adult and adolescent population. Syringes for the mass immunization campaign funded by ECHO under the United Nations appeal for Moldova were delivered in an airlift on 3 November 1995. This effort was organized and funded by the US Office of the Special Advisor to the President and Secretary for Special Assistance to the Newly Independent States. The airlift was coordinated by USAID\ Moldova with technical support and donor coordination provided by BASICS\Washington.

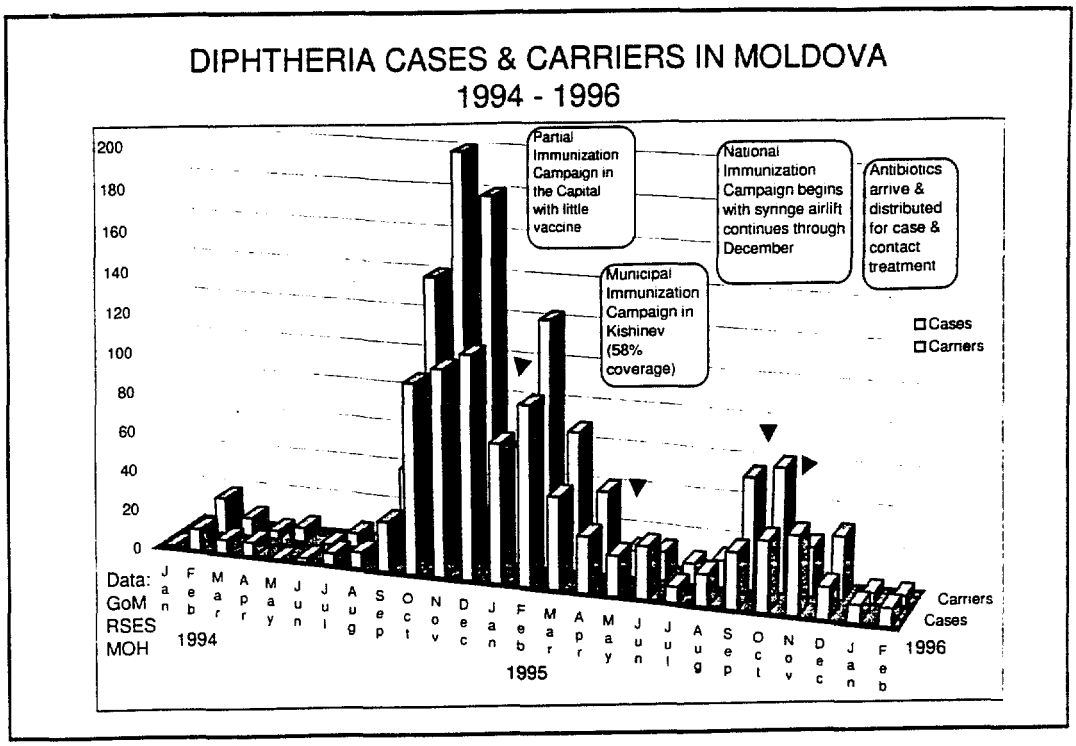
The arrival of the syringe airlift coincided with a meeting of Raion Governors, Raion Chief Health Officers, and epidemiologists from all Raions chaired by the Minister of Health to launch and organize the national diphtheria control campaign. The campaign was launched by the Minister of Health in the presence of the national media. The news of the landing was announced to the assembled officials and the press.

DIPHTHERIA CASES

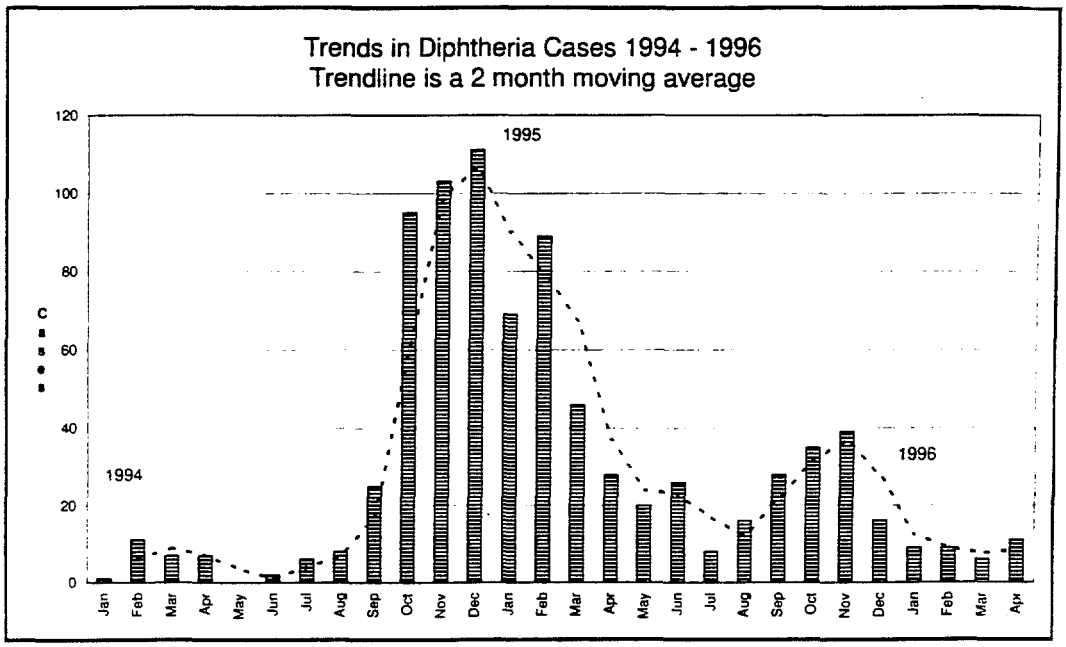
In 1994, 376 cases of diphtheria and 19 deaths were notified. In 1995 419 cases and 23 deaths were notified.

The following chart shows the number of cases, carriers and deaths notified to the Republican Sanitary and Epidemiological Station[1] (see Appendix B for details). The major diphtheria control activities during 1994 through to the end of 1995 are indicated in the chart. At the time of visit the second round of the mass immunization campaign was beginning. All notified cases of diphtheria were investigated by Raion and RSES level epidemiologists and the antibiotic treatment of cases and contacts initiated.

[1] In February 1996 the RSES was renamed the *Center for Scientific and Applied Epidemiology and Hygiene*



From November 1995 through April 1996 the number of diphtheria cases notified declined sharply by a factor of between 12 and 13 compared to the equivalent period from 1994 - 1995, demonstrating that the control strategies were beginning to show results. During the same period diphtheria case notifications increased in neighboring Ukraine.



419 cases of confirmed diphtheria and 23 deaths were notified from January through December 1995. In early 1996 far fewer cases occurred in the expected peak transmission season. Anecdotally[2] many of these cases occurred in closed institutions such as homes for the blind and disabled, facilities which appear to be poorly served and where the inmates were contraindicated for immunization under the pre-epidemic immunization policies. Immunization coverage in some rural Raions appears to be far below the national average (see Appendix C for details).

At the end of September 1995 the immunization coverage of children below 14 was estimated to be 62.5 percent. Coverage in adults was estimated at 15 percent. By early 1996 immunization coverage in children was 93 percent, while 87 percent of adults had received one or more doses of diphtheria toxoid vaccines. In the first six months of 1995, approximately 70 percent of all diphtheria cases, for which complete records were obtained, had received one or more doses of an anti-diphtherial vaccine within the previous five years[3].

SOCIAL MOBILIZATION

In September 1995 a handout[4] for use by non-governmental organizations was developed to inform NGO members and the public about diphtheria and to promote NGO campaign support activity. These clear and basic handouts were produced in Romanian and Russian languages and several thousand copies made available for distribution through NGOs and the RSES. During the visits of BASICS consultants from October 1995 through March 1996 the diphtheria handouts were seen in all health facilities visited. They were used as a general poster on diphtheria in the absence of other materials.

In October 1995, BASICS consultant Paul Olkhovsky visited Moldova to assist in the development and preparation of messages for the broadcast media. A television spot was produced and the audio track was used as radio spots. BASICS duplicated the tapes and they were distributed by the RSES. Air play was reported to be frequent (daily) throughout the first round of the immunization campaign. Anecdotal accounts suggest that the media messages increased attendance at clinics by those seeking immunization against diphtheria.

---

[2] Based on preliminary case investigations by the RSES.

[3] See Appendix G, Immunization Status of Diphtheria Cases, BASICS Report: "Diphtheria Control in the Republic of Moldova" by Allan G. Bass, July 1995.

[4] A.Bass, Diphtheria Control in the Republic of Moldova, BASICS Report, Appendix C, BASICS, 16 November 1995.

A survey to determine the public's knowledge about diphtheria, source of knowledge, and the immunization status of the respondents was planned. Under discussion was a national 100 household survey or a national 30 cluster survey. The survey would be conducted by epidemiologists of the RSES and Raions. This would determine of the effectiveness of the IEC components of the campaign and would be useful for planing additional IEC activities for the 1996 - 1997 diphtheria season.

The second round of the mass immunization campaign was begun without the use of the media messages. It was agreed to restart the broadcast of the diphtheria messages during the campaign.

SUPPLIES

Syringes

Due to delays in the delivery of syringes, the immunization component of the national diphtheria control program was stalled until 3 November 1995 when the national anti-diphtheria immunization campaign was launched. That the campaign was planned for and launched on 3 November was due to the US government's commitment to provide an emergency airlift of syringes to Moldova.

By mid-March 1996, syringe stocks were again running low and rationing begun during the second round of the mass immunization campaign. Local procurement of limited quantities of syringes and needles has taken place.

Coordination between the Ministry of Health of the Republic of Moldova and UNICEF, as the lead international agency in providing support to Moldova's diphtheria control activities, was inadequate with regard to the maintenance of the syringe supply pipeline. Syringes (1,100,000), which the ECHO had agreed to fund through the WHO\UNICEF international appeal, were expected by national authorities, but did not materialize.

Antibiotics

Antibiotics are used to treat diphtheria cases, carriers, and contacts. Antibiotic treatment prevents further-person-to person transmission of diphtheria within 24 hours of treatment. Moldova had continuing shortages of antibiotics throughout the diphtheria epidemic. Epidemiological investigations in October and November 1995 have shown that cases, carriers, and contacts had not been treated with appropriate antibiotics, confirming earlier rapid assessment data. It was

expected that the failure to properly treat cases and carriers has lead to the accumulation of diphtheria carriers.

In October 1995, UNICEF, utilizing its own general funds, initiated the procurement of Procaine Penicillin antibiotics for the treatment of diphtheria cases. On 3 November, following extensive contacts and discussions between the Moldova Ministry of Health, BASICS, and UNICEF, UNICEF initiated procurement of antibiotics for contact prophylaxis using its general funds. This second tranche of antibiotic supplies arrived in Moldova in late November 1995.

During field visits, adequate antibiotic supplies were available at all facilities visited. The RSES reported that antibiotic prophylaxis in primary contacts of cases has risen from 8 percent in 1994 - 1995 to 45 percent in late 1995 to early 1996.

Vaccines

Vaccine requirements for the national immunization program were reviewed with national authorities. This included the diphtheria control campaign, immunization of children aged under one year, and other immunizations as required under national immunization policy.

Vaccines for diphtheria control activities through the second round of the campaign appeared to be adequate. Projections of additional requirements were agreed upon and draft requests to donors prepared (see Appendix A for details).

BASICS consultant Soren Spanner collaborated with the UNICEF Moldova Logistics Officer, the RSES epidemiologists, and the newly appointed Vaccine Stores Officer on the design and implementation of vaccine stock control forms and management. Implementation should proceed during Spanner's next visit.

EQUIPMENT

Freezing of Toxoid Vaccines

No refrigerators in use in Moldova are able to protect toxoid vaccines (DT, DPT, Td, and Hb) against damage from freezing during the winter season. Based on current anecdotal information, there is a six to eight week period in winter when the ambient temperatures in un-heated facilities used to store vaccines will fall below - 4 °C and may reach as low as -15 °C. A Tiny Temperature Monitor (electronic temperature data logger) study during the winter of 1995 - 1996 was started,

but due to delays in the start of the consultant visit, findings will not be available until spring 1997.

Refrigerator Development and Production

Currently the Kishinev Refrigerator Factory produces 170 liter and 130 liter chest freezers. The 170 liter freezer costs just under US$300.00. They have the capacity to produce 15,000 refrigerators a month and are producing 3,000 a month due to cash flow problems (as a state industry). The Factory has been reverse engineering and producing a number of Zanussi refrigerator models. Compressors are sourced from a factory in Belarus where they are produced with Japanese technical assistance.

PATH consultant Steve Brooke (financial feasibility) and BASICS consultant Soren Spanner (refrigeration engineering) joined the BASICS mission for discussions with the Kishinev Refrigerator Factory and other interested parties to review the potential for manufacturing vaccine storage refrigerators produced according to the World Health Organization Global Programme on Vaccines and UNICEF Supply Division standards. A freezer for supply to UNIPAC was identified as a potential product. These consultants have prepared a separate report for further review.

NATIONAL POLICY AND PLANS

Following the promulgation of Order 267 in June 1995, Moldova has elaborated a comprehensive national diphtheria control program. On 21 July 1995, the Ministry of Health declared a State of Epidemic enabling compulsory immunization and bringing the Extraordinary Committee on Epidemics into action at ministerial and local government levels. Field visits have confirmed that these district level (Raion) Extraordinary Committees on Epidemics are meeting and preparing for the national immunization campaign. It seems unlikely that compulsory immunization will be implemented. The national diphtheria control plan, program and activities supported by BASICS are strengthening the development of an improved and sustainable Moldovan national immunization program.

A National Polio Eradication Plan has been prepared in draft, subject to scientific, clinical, and Ministerial approval (expected in December). This plan will further strengthen epidemiological surveillance and the national immunization program.

MULTISECTORAL COOPERATION

Following earlier BASICS recommendations[5] on intersectoral coordination and cooperation, Resolution Number Three established the Extraordinary Committee on Epidemics at national, municipal and district levels. These committees, composed of heads of ministries and state committees at national level, and heads of departments at local levels are responsible for the coordination, support, and finance of the immunization campaign. These committees appear to be meeting regularly and to be providing support to diphtheria control activities at Raion level.

On 20 October 1995, a non-governmental organization meeting on the national diphtheria campaign was convened by Counterpart, a USAID-funded NGO coordination body, to discuss NGO activities in diphtheria control. Fifteen selected NGOs with regional and district level membership, participated and appeared to be committed to providing community-based support to the campaign. This activity will need follow-up and evaluation. Anecdotal data suggest limited or no NGO activity in support of the diphtheria control effort and immunization campaign has taken place.

DONOR COORDINATION

Donor coordination and cooperation is crucial to the successful strengthening of Moldova's immunization program and to the implementation of the diphtheria control campaign.

Diphtheria Campaign

Only two organizations, UNICEF and USAID\BASICS have on-the-ground diphtheria control and EPI support activities and representation. UNICEF, BASICS, and USAID meet formally and informally to discuss issues on a regular basis at both senior and operational levels. These meetings identify and attempt to resolve operational and coordination problems.

UNICEF\Moldova, its representative, and staff have been extremely helpful in seeking to remedy supply problems and to provide support to the campaign and control efforts. At an operational level, a weekly meeting is held between the National Center for Hygiene and Epidemiology's (formerly RSES) Director Adjunct of General Epidemiology (Immunization Program), the Chief of Dangerous Disease Control, the UNICEF Logistics Officer, and the BASICS Coordinator to review, identify and resolve outstanding supply and operational issues. UNICEF's Health Program Officer, BASICS consultants, and additional government officials attend as needed.

---

[5] See BASICS Assignment Report: "Diphtheria Control in the Republic of Moldova" by Allan G. Bass, July 1995.

This weekly meeting is chaired by the Director Adjunct of General Epidemiology (EPI Director) of the National Center for Scientific and Applied Hygiene and Epidemiology. This forum is collaborative and co-operative and seeks to shift the implementation of the diphtheria control effort from that of crisis management towards routine program implementation.

A team consisting of the UNICEF Logistics Officer, the two epidemiologists of the RSES infectious disease control section, and the BASICS\Moldova Coordinator meets regularly to identify and resolve issues as well as to deal with routine matters and communications.

General Coordination

While a regular monthly health sector donor coordination meeting had been established, it had become a high level heads of mission meeting with little operational role. The local representatives of the World Bank, UNICEF, and USAID have attended.

On 20 November 1995, the first official health sector donors meeting took place in Moldova. Convened by the Ministry of Health and opened by the Minister, the meeting included representatives and staff of donor organizations and heads of the Ministry of Health Divisions. The process is actively supported by UNICEF\Moldova. Meetings which were planned to be held monthly have become irregular and broadly focused.

International Coordination

At the international level, donor coordination appears to be inadequate though improving, with little timely information and feedback being provided to government and donor officials and staff in Moldova. It has not been clear which components of the international appeal are funded and supported. Feedback within organizations appears to be variable. Information gaps within both UNICEF and USAID have become apparent in BASICS-led briefings. Monthly status reports on contributions, expenditure, and activities from each organization to their field staff would be helpful. UNICEF\Moldova has made great efforts to remedy this and has been able to provide detailed information to both the government and to BASICS.

BASICS, through its extensive use of facsimile, telephone, and electronic mail as well as personal contact, appears to be better informed than most and its willingness to share information has been useful to its in-country partners.

DIPHTHERIA CONTROL ACTIVITIES: 1996 - 1997

Since most of the population will have been vaccinated from November 1995 through September 1996, the 1996 - 1997 diphtheria control strategy should be epidemiological surveillance, mop-up vaccination, and contact, case, and close contact treatment. This strategy would be less commodity intensive than in the 1995 - 1996 diphtheria campaign. A major effort will be required to identify and immunize pockets of un-immunized groups such as the inmates of closed institutions and certain rural communities.

The 1996 - 1997 programmatic requirements are likely to include: 1) improved reporting and information systems; 2) information, education, and communications, particularly early presentation of cases for diagnosis; and 3) support for communications and transport.

RECOMMENDATIONS

The Ministry of Health of the Government of Moldova has made significant and largely successful efforts to control the diphtheria epidemic. Congratulations are in order. However, there are a number of areas of concern both for diphtheria control in Moldova and in the international setting:

1) The surveillance system needs to be strengthened and made more sensitive now that notified diphtheria cases have declined to lower levels. BASICS consultants Nedelcu and Molnar indicated that, based on hospital records reviewed, some cases were missed in 1995. It is important that no cases are missed, that investigations of all suspect cases are carried out, and that the treatment of cases and contacts be undertaken immediately.

2) The use of the mass media (radio and television) needs to be reinvigorated for each round of the national diphtheria immunization campaign.

3) Many of the recent diphtheria cases occurred in closed institutions such as homes for the blind and disabled, facilities which appear to be poorly served and where the inmates were contraindicated for immunization under the pre-epidemic immunization policies. Special efforts are necessary to provide immunization and antibiotic prophylaxis in these institutions.

4) Immunization coverage data in the Transdnistrian region is unclear and does not correspond to the population and birth data available. Immunization coverage may be far

lower than reported. High level discussions on diphtheria control with the Transdnistrian authorities need to address this issue.

5) The role and use of antibiotics for the treatment of cases and primary contacts of cases should be reviewed to identify the lessons learned in Moldova's successful diphtheria control effort.

6) The survey of diphtheria knowledge, source of knowledge, and immunization status should be carried out to improve social mobilization for the 1996 - 1997 diphtheria transmission season.

7) National level supervisory visits to Raions have not been regular or frequent, with many Raions not visited in more than five years. Regular and routine technical and managerial supervision is necessary to assure program quality and effectiveness.

8) The vaccine stock control system has been redesigned and agreed by senior officials. Its early implementation will reduce vaccine shortages and wastage and will assist the Ministry of Health to achieve vaccine self-reliability and sustainability.

9) No refrigerators in use are able to protect toxoid vaccines (DT, DPT, TD, and Hb) against damage from freezing during the winter season. Based on current anecdotal information, there is a six to eight week period in winter when the ambient temperatures in un-heated facilities used to store vaccines will fall below -4 °C and may fall as low as -15°C. A Tiny Temperature Monitor (data logger) study during the winter of 1995 - 1996 should be completed to determine the parameters and extent of the problem. This will enable the development of operational measures and equipment to prevent this form of vaccine damage.

10) UNICEF\Moldova, its representative, and staff have been extremely helpful in seeking to remedy supply problems and to provide support to the campaign and control efforts. UNICEF\Moldova should be congratulated and thanked for its high level of commitment and support to the diphtheria control effort. With BASICS technical assistance coming to an end in late 1996, it is essential for the development of sustainable, effective immunization in Moldova that the UNICEF Logistics Officer continue to provide technical and logistical support to the program through 1997.

11) At the international level, donor coordination appears to be inadequate, with little timely information and feedback being provided to government and donor officials and staff in Moldova. It is not clear which components of the international appeal are funded and supported. Feedback within organizations appears to be variable. Information gaps within

organizations have become apparent in BASICS-led briefings. Monthly status reports on contributions, expenditure, and activities from each organization to their field staff would be helpful.

12) A review of the management information system similar to the Kyrgyzstan model was agreed upon. This should be implemented in 1996 with a view to develop and implement an improved MIS in 1997.

APPENDICES

APPENDIX A

Brief for Dr. Mikhai Magdei
Deputy Minister of Health
Co-Chairman, Coordination Committee
on Diphtheria Prevention and Control
Republic of Moldova

By Allan G. Bass
BASICS Consultant
12 March 1996

The situation regarding vaccine preventable diseases, particularly diphtheria, in the Republic of Moldova while continuing to be serious has recently shown signs of more effective control.

A number of concerns arise from this BASICS visit.

1. The surveillance system needs to be strengthened and made more sensitive now that notified diphtheria cases have declined to lower levels. BASICS Consultants Nedelcu and Molnar indicated that, based on hospital records reviewed, some cases were missed in 1995. It is important that no cases are missed, that investigations of all suspect cases are carried out and that the treatment of cases and contacts undertaken immediately.

2. Immunization coverage data in the Transdnistrian region is unclear and does not correspond to the population and birth data available.

3. The use of the mass media - radio and television - needs to be reinvigorated for each round of the national diphtheria immunization campaign.

4. The survey of diphtheria knowledge, source of knowledge, and immunization status should be carried out to enable improved social mobilization for the 1996 - 1997 diphtheria transmission season.

5. Vaccine requirements for the national immunization program have been estimated for 1996. Requests to donors and Government of Moldova procurement should be prepared at an early stage. BASICS is prepared to provide technical assistance to the Government's vaccine procurement activity in a tender and bid exercise.

6. National level supervisory visits to Raions have not been regular or frequent, with many Raions not visited in more than five years. Technical and management supervision is necessary to assure program quality and effectiveness.

7. The Vaccine Stock Control system has been redesigned and agreed by senior officials. It's early implementation will reduce vaccine shortages and wastage and will assist the Ministry of Health to achieve vaccine self reliability and sustainability.

The writer wishes to acknowledge and congratulate the Ministry of Health and the RSES for its actions to ensure that diphtheria is controlled in the 1995 - 1996 transmission season.

APPENDIX B

APPENDIX B

Diphtheria Cases 1994 - 1996

MONTHLY DISTRIBUTION OF DIPHTHERIA CASES AND CARRIERS				
Year	Month	Cases	Carriers	Totals
1994	Jan	1	1	2
1994	Feb	11	18	29
1994	Mar	7	9	16
1994	Apr	7	4	11
1994	May	0	7	7
1994	Jun	2	0	2
1994	Jul	6	7	13
1994	Aug	8	8	16
1994	Sep	25	43	68
1994	Oct	95	140	235
1994	Nov	103	200	303
1994	Dec	111	180	291
1995	Jan	69	59	128
1995	Feb	89	123	212
1995	Mar	46	69	115
1995	Apr	28	41	69
1995	May	20	13	33
1995	Jun	26	14	40
1995	Jul	8	10	18
1995	Aug	16	13	29
1995	Sep	28	55	83
1995	Oct	35	61	96
1995	Nov	39	24	63
1995	Dec	16	31	47
1996	Jan	9	5	14
1996	Feb	9	5	14
1996	Mar	6	26	32
1996	Apr	11	16	27

APPENDIX C

APPENDIX C
DIPHTHERIA IMMUNIZATION COVERAGE
CAMPAIGN 1995

Coverage of Target Populations with Anti-diphtheria Vaccines			
Age Group years	DT/TD dose 1 percent	TD dose 2 percent	TD dose 3 percent
3-6	83.3	0	0
7	91.7	0	0
8-10	90	0	0
11-14	92.1	0	0
15	84.3	0	0
16-19	69.3	8.8	0
20-29	85.6	9.7	0
30-39	95.7	24.7	1.2
40-49	79.6	21.2	1.2
50-59	98.9	11.0	0
³60	69.4	1.7	0
Totals	75.6	21.7	1.2
Data for November 1995 through 1 April 1996, RSES GOM May 1996			

Immunization Coverage in Children Under 3 Years of Age in 1995							
BCG 1 year	DPT3 1 year	DPT3 + DT 1 year	DPT4 3 years	DPT4 + DT 3 years	OPV3 1 year	Measles 2 years	Mumps 2 years
97.3 percent	95.5 percent	96.7 percent	83.0 percent	93.7 percent	95.4 percent	98.6 percent	23.0 percent
Source: RSES GOM May 1996							

APPENDIX D

APPENDIX D
PROJECTED VACCINE REQUIREMENTS
1996

MOLDOVA 1996 VACCINE ESTIMATES COST SUMMARY				
ITEMS	TOTAL COST	Government of MOLDOVA	Government of JAPAN	UNICEF
TOTAL COSTS OF PRIMARY VACCINES	$182,487		$141,596	$40,892
TOTAL COSTS OF ADULT Td VACCINES	$124,809		$124,809	
TOTAL COST BOOSTERS BCG, OPV & MUMPS VACCINES	$99,572	$99,572		
TOTAL VACCINES	$406,867	$99,572	$266,404	$40,892
Total Costs: Syringes for Primary immunization	$55,147		$14,429	$40,718
Total Costs: Syringes for MUMPS immunization	$10,984	$10,984		
Total Costs: Syringes for BCG Booster immunization	$17,706	$17,706		
Total Costs: Syringes for adult Diphtheria control	$196,582		$196,582	
TOTAL SYRINGES	$280,418	$28,690	$211,011	$40,718
GRAND TOTAL	$687,286	$128,261	$477,415	$81,609
Programmed budget	$805,264	$220,264	$500,000	$85,000
Uncommitted Funds	$117,978	$92,003	$22,585	$3,391
		To be used for other GoM items	Purchase of CopyPrinter and other items	

ESTIMATED VACCINE AND SYRINGES REQUIREMENTS FOR MOLDOVA 1996

Usage	primary	primary	primary	primary	primary	primary	DT
Vaccine/Syringe	BCG	DPT	OPV	DT	Syringes	Syringes	Syringes
Vial/Syringe Size	20	10	10	2	0.1 ml BCG	2.0ml	2.0 ml
Balance vials or syringes required RND	8,900	10,900	13,900	10,000	41,500	412,500	112,100
Price/vial or syringe US$	$1.35	$0.85	$0.90	$0.13	$0.08	$0.05	$0.05
Cost of vaccine or syringes	$12,015	$9,265	$12,510	$1,280	$3,403	$20,625	$5,605
Airfreight %	10%	10%	10%	10%	10%	10%	10%
Airfreight/freight Cost	$1,202	$927	$1,251	$128	$340	$2,063	$561
Base cost	$13,217	$10,192	$13,761	$1,408	$3,743	$22,688	$6,166
Commission on Procurement %	6%	6%	6%	6%	6%	6%	106%
Commission Cost	$793	$611	$826	$84	$225	$1,361	$6,535
TOTAL COST OF ITEM	$14,009	$10,803	$14,587	$1,492	$3,968	$24,049	$12,701
FUNDING	UNICEF						
TOTAL	$81,609						

Usage	primary	adult	diphtheria	primary
Vaccine/Syringe	HepB	Td	Syringes	Syringes
Vial/Syringe Size	1	20	2.0 ml	2.0ml
Balance vials or syringes required RND	144,100	89,200	3,371,900	247,500
Price/vial or syringe US$	$0.90	$1.20	$0.05	$0.05
Cost of vaccine or syringes	$129,690	$107,040	$168,595	$12,375
Airfreight %	3%	10%	10%	10%
Airfreight/freight Cost	$3,891	$10,704	$16,860	$1,238
Base cost	$133,581	$117,744	$185,455	$13,613
Commission on Procurement %	6%	6%	6%	6%
Commission Cost	$8,015	$7,065	$11,127	$817
TOTAL COST OF ITEM	$141,596	$124,809	$196,582	$14,429
FUNDING	Government of Japan			
TOTAL	$477,415			

Usage	booster	primary +	booster	booster	primary +
Vaccine/Syringe	OPV	Mumps	BCG	Syringes	Syringes
Vial/Syringe Size	10	2	20	0.1 ml BCG	2.0 ml
Balance vials or syringes required RND	12,800	99,900	23,200	196,300	199,700
Price/vial or syringe US$	$0.90	$0.50	$1.35	$0.08	$0.05
Cost of vaccine or syringes	$11,520	$49,950	$31,320	$16,097	$9,985
Airfreight %	10%	5%	10%	10%	10%
Airfreight/freight Cost	$1,152	$2,498	$3,132	$1,610	$999
Base cost	$12,672	$52,448	$34,452	$17,706	$10,984
TOTAL COST OF ITEM	$12,672	$52,448	$34,452	$17,706	$10,984
FUNDING	Government of Moldova				
TOTAL	$128,261				

Syringe Estimates

usage	primary	primary
Vaccine	Syringes	Syringes
Facility of use	SC/Amb/PM	SC/Amb/PM
Vial Size	2.0 ml	2.0 ml
Target population 1996	60,000.00	60,000.00
Unimmunized in 1995	6,000.00	6,000.00
Total target population	66,000	66,000
Target coverage %	100%	100%
Number of doses in series	5	3
wastage	1.1	1.1
base doses	330,000	198,000
Reserve %	25%	25%
Reserve doses	82,500	49,500
Total doses or syringes required	412,500	247,500
Total Vials or Syringes required		Com
Existing stock (doses)	0	0
Existing stock (vials)		
Balance vials or syringes required	412,500	247,500
Balance vials or syringes required RND	412,500	247,500
Price/vial or syringe US$	0.05	0.05
Cost of vaccine or syringes	$20,625.00	$12,375.00
Freight %	10%	10%
Airfreight/freight Cost	$2,063	$1,238
Base cost	$22,688	$13,613
Commissio on Procurement %	6%	6%
Commission Cost	$1,361	$817
TOTAL COST OF ITEM	$24,049	$14,429

ESTIMATED VACCINE AND SYRINGES REQUIREMENTS FOR MOLDOVA 1996

usage	primary	booster	primary	primary	BOOSTER	primary	primary	primary	primary	adult	primary	primary	primary +	primary	booster	primary	primary +	DT	diphtheria
Vaccine	BCG	BCG	DPT	OPV	OPV	Measles	Measles	HepB	HepB	Td	DT	DT	Mumps	Syringes	Syringes	Syringes	Syringes	Syringes	Syringes
Facility of use	Maternity	SC/Amb/PM	SC/Amb/PM	SC/Amb/PM	SC/Amb/PM	SC/Amb/PM	PM	Maternity	SC/Amb/PM	SC/Amb/PM	SC/Amb/PM	SC/Amb/PM	SC/Amb/PM	maternity	SC/Amb/PM	SC/Amb/PM	SC/Amb/PM	SC/Amb/PM	SC/Amb/PM
Vial Size	20	20	10	10	10	10	1	10	1	20	2	10	2	0.1 ml BCG	0.1 ml BCG	2.0 ml	2.0 ml	2.0 ml	2.0 ml
Target population 1996	60,000	153,600	60,000	60,000	75,500	40,000	20,000	60,000	60,000	3,100,500	3,000	75,500	60,000	60,000	153,600	60,000	60,000	78,500	3,100,500
Unimmunized in 1995	5,000	5,000	2,000	5,000	3,000	2,000	0	2,000	0	68,000	1,000	2000	105,000	6,000	5,000	6,000	105,000	3,000	68,000
Total target population	65,000	158,600	62,000	65,000	78,500	42,000	20,000	62,000	60,000	3,168,500	4,000	77,500	165,000	66,000	158,600	66,000	165,000	81,500	3,168,500
Target coverage %	100%	90%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	90%	100%	100%	100%	100%
Number of doses in series	1	1	4	4	1	1	1	1	2	1	3	1	1	1	1	8	1	1	1
wastage	3.0	2.6	1.3	1.3	1.3	2.0	1.0	1.2	1.0	1.3	1.5	1.25	1.1	1.1	1.1	1.1	1.1	1.1	1.1
base doses	195,000	371,124	322,400	338,000	102,050	84,000	20,000	74,400	120,000	4,119,050	18,000	96,875	181,500	72,600	157,014	580,800	181,500	89,650	3,485,350
Reserve %	25%	25%	25%	25%	25%	25%	25%	20%	20%	10%	10%	10%	10%	25%	25%	25%	10%	25%	10%
Reserve doses	48,750	92,781	80,600	84,500	25,513	21,000	5,000	14,880	24,000	411,905	1,800	9,688	18,150	18,150	39,254	145,200	18,150	22,413	348,535
Total doses or syringes required	243,750	463,905	403,000	422,500	127,563	105,000	25,000	89,280	144,000	4,530,955	19,800	106,563	199,650	90,750	196,268	726,000	199,650	112,063	3,833,885
Total Vials or Syringes required	12,188	23,195	40,300	42,250	12,756	10,500	25,000	8,928	144,000	226,548	9,900	10,656	99,825						
Existing stock (doses)	67,600	0	294,300	284,000	0	112,500	25,000	135,000	0	2,748,400	0	267,180	0	49,300	0	0	0	0	462,000
Existing stock (vials)	3,380	0	29,430	28,400	0	11,250	25,000	13,500	0	137,420	0	26,718	0						
Balance vials or syringes required	8,808	23,195	10,870	13,850	12,756	-750	0	-4,572	144,000	89,128	9,900	-16,062	99,825	41,450	196,268	726,000	199,650	112,063	3,371,885
Balance vials or syringes required RND	8,900	23,200	10,900	13,900	12,800	0	0	-4,500	144,100	89,200	10,000	0	99,900	41,500	196,300	726,100	199,700	112,100	3,371,900
Price/vial or syringe US$	$1.35	$1.35	$0.85	$0.90	$0.90	$1.35	$0.75	$5.65	$0.90	$1.20	$0.13	$0.70	$0.50	$0.08	$0.08	$0.05	$0.05	$0.05	$0.05
Cost of vaccine or syringes	$12,015	$31,320	$9,265	$12,510	$11,520	$0	$0	-$25,425	$129,690	$107,040	$1,280	$0	$49,950	$3,403	$16,097	$36,305	$9,985	$5,605	$168,595
Airfreight %	10%	10%	10%	10%	10%	10%	10%	3%	3%	10%	10%	10%	5%	10%	10%	10%	10%	10%	10%
Airfreight/freight Cost	$1,202	$3,132	$927	$1,251	$1,152	$0	$0	-$763	$3,891	$10,704	$128	$0	$2,498	$340	$1,610	$3,631	$999	$561	$16,860
Base cost	$13,217	$34,452	$10,192	$13,761	$12,672	$0	$0	-$26,188	$133,581	$117,744	$1,408	$0	$52,448	$3,743	$17,706	$39,936	$10,984	$6,166	$185,455
Commission on Procurement %	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	106%	6%
Commission Cost	$793	$2,067	$611	$826	$760	$0	$0	-$1,571	$8,015	$7,065	$84	$0	$3,147	$225	$1,062	$2,396	$659	$6,535	$11,127
TOTAL COST OF ITEM	$14,009	$36,519	$10,803	$14,587	$13,432	$0	$0	$0	$141,596	$124,809	$1,492	$0	$55,594	$3,968	$18,769	$42,332	$11,643	$12,701	$196,582
SUBTOTALS	$14,009	$36,519	$10,803	$14,587	$13,432	$0		$141,596		$124,809	$1,492		$55,594	$3,968	$18,769	$42,332	$11,643	$209,283	

APPENDIX E

To: **Mr. Stefan Toma**
RPO UNICEF
Chisinau, Moldova

From: **Ms. Viorica Ghimpu**
Logistics Officer
Chisinau, MoH

Ref: **Mr. Bruno Martin's fax regarding Diphtheria Situation in the Republic of Moldova (February 26, 1996)**

Concerning the Diphtheria situation in Moldova, the authorities from the National Scientific and Practical Center of Hygiene and Epidemiology provided the following information:

The situation regarding diphtheria in the Republic of Moldova in 1995 was characterized by the continuation of epidemic diphtheria, which started in September 1994. The total number of cases in this year was 419 with 508 confirmed carriers. The incidence was 9.6 cases and 11.7 carriers per 100,000 inhabitants, the general index of diphtheria spread was 21.28. More intensive spread of diphtheria was observed during the first half of this year - 277 cases (66.1 percent).

The increasing incidence of diphtheria cases, starting in September through to November was reduced by a national campaign of mass immunization which began on 3 November. During the November and December campaign 1995 74.3 percent of children 3-6 years, 79.5 percent of children at 7 years of age were immunized with DT vaccine 87.6 percent of children of 8-14 years and about 71.65 percent of adults up to 60 years of age received one dose of TD vaccine.

In November the wide use of antibiotics for the treatment of primary contacts was initiated.
National and Raion epidemiologists managed and supervised the improved preventive treatment with antibiotics from a low of 8.5 percent in 1994 to 44.5 percent of close contacts and from 11.5 percent to 33.7 percent for collective contacts. The number of carriers of toxigenic diphtherial corynebacteria decreased from 6.2 percent to 2.0 percent in primary contact carriers and from 2.2 percent to 1.3 percent in collectives.

The age structure of cases (annex 1) changed, but not significantly. Of children of 0 -2 years there were 14 in 1995 (3.3 percent) registered cases of diphtheria. (7.2 percent per 1000 in 1995, 1994 - 8.2 percent per 1000), of children 3 - 6 there were 48 cases in 1995 (11.5 percent of all cases) or 15.5 percent per 1000, and in 1994 - 16.8 percent per 1000, and in children of 7-14 years - 146 cases (34.8 percent of all cases) and 21.9 percent per 1000, while in 1994 - 23.3 percent per 1000.

The increase of the incidence in adults is evident - 211cases (50.3 percent compared to - 40.7 percent in 1994) 6.6 percent per 1000, 1994 - 4.8 percent per 1000).

Because of diphtherial infection there were 23 death cases, mortality representing -5.49 percent, out of which children of 0-2 years - 1; 3-6 years - 5; 7-14 years - 2 (death cases among children representing 3,85 percent) and adults - 15 (death cases among adults representing - 7,11 percent).

This table presents the monthly distribution of diphtheria cases and carriers in 1995:

Months	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Cases	69	89	45	28	20	26	8	16	28	35	39	16	419
Carriers	59	123	69	41	13	14	10	13	55	61	24	26	508
Total	128	212	114	69	33	40	18	29	83	96	63	42	927

Cases of diphtheria were registered in 40 administrative territories out of 45 except for Camenca, Cainari, Cimislia, Sanatauca, Taraclia. In these Raions the laboratory identification of diphtheria was not carried out. The maximum incidence of diphtheria was registered in Calaras, Causeni, Ialoveni, Leova - between 30 -37 cases per 100,000 inhabitants, 84.09 carriers in Orhei, 67.85 in Hincesti and 116.56 per 100,000 in Ribnita. The majority of carriers were identified in children in half-closed boarding schools.

During 1995 the implementation of the National Program of immunization continued.

The immunization coverage of children of 1 year of age for Pertussis was 95 percent, Diphtheria and Tetanus - 97 percent, Polio - 97 percent, Hepatitis B - 18 percent and Tuberculosis -97 percent. Routine immunization started in August 1994. The coverage with measles vaccine in children of 2 years of age was 98 percent, epidemic parotitis - 23 percent. At 3 years 83 percent were covered with the first revaccination against pertussis - 82,96), diphtheria and tetanus - 94 percent, poliomyelitis - 95 percent.

The coverage with the second revaccination at 7 years for diphtheria and tetanus was - 96.5 percent, poliomyelitis - 96 percent and the first revaccination with BCG - 75 percent.

The lowest rates of immunization coverage are in Slobozia, Grigoriopol and other sites included in the Transdnistria region and is due to the difficult political and economic situation in this zone.

APPENDIX F

Scope of Work for Allan G. Bass:

BASICS Consultant Allan Bass will travel to Chisinau, Moldova to work on diphtheria control and MIS development. Specifically during his visit, he will carry out the following:

- collect data on extent and parameters of the vaccine freezing problem by installing Time Temperature Monitors (TTM's) in a random sample of refrigerators used for vaccine storage throughout the country;

- follow up on national diphtheria campaign through visits to several Raions to review implementation and results of the campaign at local levels. Provide feedback to MOH authorities for discussion on program issues and on maximizing the effectiveness of diphtheria control activities;

- review the treatment of diphtheria cases and contacts and discuss with MOH authorities to implement strategies which are epidemiologically appropriate to the course of the epidemic;

- work in areas related to reliable shipment of vaccines and commodities to ensure timely delivery in sufficient and appropriate quantities. Follow up with MOH counterparts and UNICEF logistician on commodities forecasting, determine unmet needs as background for identifying donors;

- work to strengthen the Inter-Agency Coordinating Committee through participation in an IIC meeting, hold discussions with various participating organizational representatives on coordinating effective support for the national immunization program;

- follow up on work begun to develop an NGO/PVO network of support for immunization through meeting with the Counterpart project and relevant MOH authorities, and identifying action to be taken;

- assess the status of the Health Management Information System at national and Raion levels and initiate plans for program reorientation toward data collection for program action rather than for reporting only;

- generally assess the need and perceived need for syringe disposal boxes and recommend its degree of priority in providing support to the national immunization program;

- brief and debrief USAID representative at the American Embassy.