# REPORT OF THE MEETING OF THE 6th TECHNET CONSULTATION

16-20 March 1998

Copenhagen

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BASICS Technical Directive 000 HT 51 023/000 AF 59 011/000 AF 51 025
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## ACRONYMS

| | |
|---|---|
| ARI | Acute Respiratory Infection |
| BASICS | Basic Support for Institutionalizing Child Survival |
| BCG | Bacillus of Calmette and Guerin (tuberculosis vaccine) |
| CAR | Central Asian Republics |
| CDC | Centers for Disease Control and Prevention |
| CDD | Control of Diarrheal Diseases |
| DPT | Diphtheria, Pertussis, and Tetanus Vaccine |
| DT | Diphtheria and Tetanus Toxoid Combination Vaccine (for use in young children) |
| EAG | European Advisory Group |
| EPI | Expanded Program on Immunization |
| FAP | Feldscher (Medical Assistant) Accoucher (Midwife) Post |
| IEC | Information, Education, and Communication |
| IICC | Interagency Immunization Coordinating Committee (for the NIS) |
| MOH | Ministry of Health |
| NID | National Immunization Day |
| NIS | Newly Independent States |
| OPV | Oral Polio Vaccine |
| PATH | Program for Appropriate Technology in Health |
| REACH | Resources for Child Health Project |
| SNID | Sub-National Immunization Day |
| TECHNET | Technical Network for Logistics for Health |
| TT | Tetanus Toxoid |
| UNICEF | United Nations Children's Fund |
| USAID | United States Agency for International Development |
| VVM | Vaccine Vial Monitor |
| WHO/EMR | World Health Organization Eastern Mediterranean Regional Office |
| WHO/EURO | World Health Organization European Office |
| WHO/GPV | World Health Organization Global Programme for Vaccination |

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## EXECUTIVE SUMMARY

The TECHNET consultation consisted of sessions on the following topics

Vaccine Vial Monitors
The Cold Chain (CFC Free Equipment and the Cold Chain of the Future)
Vaccine Demand, Supply and Forecasting
Injection Safety and Injection Technologies
Mass Immunization Campaigns
Immunization Service Delivery and Training

Steinglass gave two presentations, served as chairman of the cold chain session, and served as rapporteur of the immunization service delivery session Wylie, participating as a BASICS-funded consultant, contributed to sub-group discussions and to formulation of recommendations and proposed activities on enhancing utilization of vaccine vial monitors, low temperature protection of adsorbed vaccines, injection safety and technologies, and training

## BACKGROUND

The writers are members of the TECHNET (Technical Network for Logistics in Health), an invited group of logistic and technical agency staff, consultants, and national health staff, which advises WHO/GPV on the immunization program It has met every one to two years since 1990, with the last consultation in Manila in March 1996 Between meetings, WHO/GPV calls upon the advice of the group and relies on the group to follow up on and implement activities agreed during the consultations This sixth consultation was the largest yet and had a significant number of industry representatives as observers

Prior to the meeting, BASICS had been asked by WHO/GPV to comment on the draft agenda As a result of our suggestions, the agenda was modified to include presentations on

- the role of logistics in disease surveillance
- integration of logistics
- impact of decentralization on immunization in Zambia and Uganda

## TRIP ACTIVITIES

Steinglass gave two presentations, served as chairman of the cold chain session, and served as rapporteur of the immunization service delivery session The presentations were entitled

- "Procurement of Vaccines for Public Sector Programs A Reference Manual with WHO Recommendations"

- "Linking Policies, Practices, Supplies, and Monitoring for Sustainable Immunization in the NIS"

The first presentation was prepared jointly with BASICS consultant Dian Woodle

In addition, Steinglass pursued many useful conversations with representatives of other partner agencies and consultants Wylie, a consultant in immunization logistics for over 20 years with multilateral, bilateral, and voluntary agencies, contributed his experience to many of the plenary discussions on the main topics and made specific contributions to the drafting of recommendations and proposed activities on enhancing utilization of vaccine vial monitors on OPV, low temperature protection of adsorbed vaccines, injection safety and technologies, and training

**FINDINGS**

The agenda, list of participants, and list of documents appear as Appendixes A, B, and C, respectively

The recommendations of the TECHNET consultation appear as Appendix D

The presentations on "Procurement of Vaccines for Public Sector Programs A Reference Manual with WHO Recommendations" and "Linking Policies, Practices, Supplies, and Monitoring for Sustainable Immunization in the NIS" appear as Appendixes E and F A summary of the latter presentation appears in Appendix G

The deliberations which Steinglass recorded during the session "Immunization Service Delivery" appear in Appendix H, first as detailed notes and then as more polished summaries, and will appear in the body of the report of the meeting, which will be issued by WHO/GPV

Issues raised recently by Steinglass, which were the subject of discussion and recommendations, included

- vaccine labeling
- use of VVMs as a management tool
- the need for reviewing stock position before each call forward
- the need to regularly re-calculate wastage rates based on data

WHO/EMR has introduced into all countries the vaccine arrival report designed by Steinglass many years ago to monitor the conditions of arrival of internationally shipped vaccines UNICEF has decided to introduce vaccine labels in Russian, effective on the next tender

The recommendation of the sub-group discussing health sector reform, which included the NIS, proposed and drafted by Steinglass, was accepted in plenary and appears in Appendix I The recommendation states the following

> "TECHNET should form a small informal sub-group comprising experienced technical experts from within WHO, UNICEF, and other technical partners with experience in the NIS to focus on technical and operational problems facing the routine immunization systems of the NIS and design coordinated strategies for their resolution "

Comments and suggestions by Wylie in plenary and sub-group sessions which were discussed and/or reflected in draft recommendations and proposed activities included

- the "minimum package of activities" VVM approach at country level
- incorporating VVM training into pre-service curricula for health workers
- user guidelines on low temperature protection for existing refrigerators
- safe injections within the broader "safe immunizations" framework
- further development and monitoring of national plans of action for injection safety based on the WHO/WPRO approach
- "bundling" of TST (temperature, steam, time indicators) spots and safety boxes with re-sterilizable syringes and needles supplied by UNICEF, and planned re-supply of these syringes and steam sterilizer spare parts with other EPI supplies
- the identification and review, or the development of, an appropriate protocol for evaluating measles mass immunization logistics and preparedness
- distance learning approaches to immunization training/learning
- effective mechanisms for appropriate translation of all immunization materials
- explicit consideration in the planning of integration of immunization supplies with other health supplies, along with vaccines, of all consumable supplies, including equipment spare parts and injection safety supplies and all capital equipment items
- in preparation of cold chain equipment replacement plans, recognition of differences in the expected working life of various generic types of refrigerator, particularly longer expected life of certain special purpose vaccine refrigerators

- standardized "minimum required content" for equipment user manuals and procedures for assessing and field testing existing ones and new draft manuals

Some other interesting findings from either the consultation itself or from side conversations

- WHO/EURO agrees to an informal meeting the day before the IICC meeting in late May They want to discuss, among other topics, health sector reform in the NIS This will also be an opportunity to discuss formation of a TECHNET informal sub-group on immunization in the NIS

- CDC may fund a position in Geneva dedicated to safe injection

- Mark Miller's presentation claimed that 1 95 million annual deaths occur as a result of unsafe injections (with EPI responsible for up to 10%)

- Bibigul Alimbekova, BASICS regional coordinator, was on a one-month health policy consultancy in WHO/EURO

- CDC funding has come through for Sergei Deshevoi to continue with polio work in the CAR

- CDC funds will support a polio epidemiologist for the region of Ukraine, Moldova, and the Caucasus

- Carla Lee at CDC has been designated their cold chain person within the new Division of Vaccine-Preventable Disease Eradication

- Uzbekistan has requested and been given a three-year extension by UNICEF (until 2003) to achieve vaccine self-sufficiency under the Vaccine Independence Initiative (VII) Turkmenistan and Kazakhstan have met their annual financial obligations Their VII now includes the procurement of some syringes, as well as a budget-line item for vaccines, made possible by falling vaccine prices since agreements were signed They have begun to negotiate the buying of supplies for ARI and CDD programs

- UNICEF now agrees to procure the traditional EPI vaccines for Band C and countries in Bands A and B on an "individual procurement basis," as well as new vaccines for countries in Bands A and B

- Less than one-third (14/47) of Band A countries so far meet the target of meeting at least 10 percent of annual vaccine costs from their own resources

- Zambia's new Health Management Information System uses "protected pregnancy" as an indicator of neonatal tetanus protection instead of the conventional (and very difficult to calculate) "TT coverage "

- UNICEF/CARK (Central Asian Republics and Kazakstan) is to test and finalize an improved Adverse Events Following Immunization (AEFI) Case Investigation Report Form by the end of 1998 within their "safe immunization practices" activities

- Serge Ganivet, WHO/Cameroon, is hoping to get an interagency "National TECHNET" established, in particular, to guide injection safety activities

## RECOMMENDATIONS

The recommendations from the TECHNET consultation appear as Appendix D The 14 recommendations from Steinglass's presentation (see Appendix F) will presumably be some of the first topics discussed by the new TECHNET informal sub-group

## FOLLOW-UP ACTION

1 Pursue with WHO/GPV the discussion on forming a TECHNET informal sub-group for the NIS, as recommended by the TECHNET consultation

Specifically, the exact details of the TECHNET sub-group—its terms of reference, mode of operation, precise focus (such as injection safety, cold chain and logistics, training, curriculum development, vaccine procurement, monitoring, IEC, etc ), composition, the periodicity of its technical consultations, and source of funding—should be worked out at the earliest opportunity by the secretariat of the TECHNET, in consultation with other interested technical and funding partners WHO will take the lead by the end of May to decide on the details

2 In all countries with BASICS offices/activities, discuss with UNICEF and WHO appropriate support for country completion of "minimum package of activities" for VVM orientation and information dissemination

3 In countries which expect to become financially self-sufficient for vaccine purchases within the next five years (through VII agreements or otherwise), promote the use of the new USAID/BASICS/PATH and WHO Vaccine Procurement Manual, with consultancy support as appropriate

# APPENDIXES

# APPENDIX A.
# AGENDA

WHO/EPI/TECHNET 98/1
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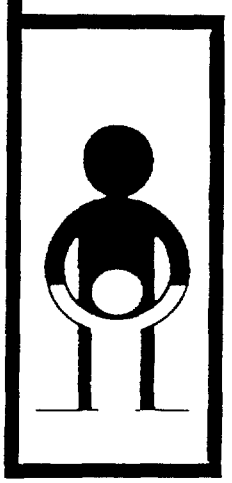
# *Agenda*

## *Technet Consultation*

16-20 March 1998
Copenhagen, Denmark



EXPANDED PROGRAMME ON IMMUNIZATION GLOBAL PROGRAMME FOR VACCINES AND IMMUNIZATION

*World Health Organization, Geneva, 1998*

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# 6th CONSULTATION OF THE TECHNET
# TECHNICAL NETWORK FOR LOGISTICS IN HEALTH

## COPENHAGEN, 16-20 MARCH 1998

## PROVISIONAL AGENDA [1]

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## MONDAY 16 MARCH

**8 00 - 8 30** **Registration**

**8 30 - 9 00** **Opening Remarks**

Dr S Dittman WHO/EURO
Ms V Li-Frankenstien UNICEF Supply Division
**Dr S Landry, USAID**

**9 00 - 9 15** **Objectives of the meeting**

Progress with 1996 priority activities & 1998 Objectives and Agenda, WHO/EPI

**9 15 - 9 30** **Discussion**

**9 30 - 10 30** **Session 1 - Vaccine Vial Monitors**

***Chair*** *Steve Landry*
***Rapporteur*** *Rachel Feilden*
***Objectives*** *Review status of OPV vaccine vial monitor Problems of introduction impact on cold chain cost and logistics of NIDs Make recommendation for future activities in this area particularly regarding use of VVM as a management tool introduction of VVMs on other EPI vaccines*

| | | |
|---|---|---|
| 9 30 | VVMs (1994 - 1998) Here they are [1] | M Zaffran |
| 9 45 | VVMs in routine programme in Bhutan | D Kristensen |
| 10 00 | VVMs during NIDs in Nepal | B Aylward |
| 10 15 | VVMs during NIDs in Turkey | O Afsar |

**10 30 - 11 00** **Coffee Break**

| | | |
|---|---|---|
| 11 00 | VVMs on locally produced and directly procured OPV | P Evans |
| 11 15 | VVMs where do we go from here? | V Tsu |
| 11 30 | Vaccine Industry perspective | IFPMA/EVM |

**11 45 - 12 30** **Discussion**

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[1] 14-03-98

## MONDAY 16 MARCH, (cont )

**12 30 - 13 30** **Lunch**

**13 30 - 14 30** **Session 2- The Cold Chain CFC free equipment**

***Chair*** *Robert Steinglass*
***Rapporteur*** *Gordon Larsen*
***Objectives*** *Review progress with change to CFC free cold chain equipment assess magnitude of problems encountered make decision on objectives and time frame for changes in cold chain standards*

| | | |
|---|---|---|
| 13 30 | Cold Chain In Central Asian Republics and Kazakhstan | S Guichard |
| 13 45 | Cold chain plans in the WPR | C Maher |
| 14 00 | Cold Chain inventories in Africa | L Pierre |
| 14 15 | Cold Chain inventories in South East Asia | T Hart |

**14 30 - 15 00** **Discussion**

| | | |
|---|---|---|
| 15 00 | Training of technicians on CFC free equipment | S Kone |
| 15 15 | Use of hydrocarbons refrigerants in the Cold Chain | S Sicars |

**15 30 - 16 00** **Coffee Break**

| | | |
|---|---|---|
| 16 00 | UNEP OzonAction Programme | H Koppen |
| 16 15 | Vaccine storage in cold climates Moldova and Kazakhstan | A Bass |

**16 30 - 17 00** **Discussion**

**17 00 -18 00** **Group discussions**

**VVMs** More VVM impact studies Use of OPV VVM as proxy indicator/management tool Which VVMs next and for what purpose? Impact on cold chain standards
**Cold Chain & CFCs** Should we change EPI standards to allow for use of R600 or other gases? How much and what type of training for CFC free equipment is needed? India experience with Ecofridge Use of Eutectics should more work be done?

**18 30** **Cocktail Party**



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# TUESDAY 17 MARCH

| | | |
|---|---|---|
| **8 30 - 9 00** | **Review of priority activities** | |
| | VVMs and Cold Chain/CFCs | |
| **9 00** | **Session 2 The Cold Chain Cold Chain of the future** | |
| 9 00 | Product Information Sheets and Standard Performance Specifications and Test Procedures Current Status | H Everts |
| 9 15 | Relaxing the Cold Chain—objectives and constraints | M Zaffran |
| 9 30 | Use of domestic refrigerators | H Everts |
| 9 45 | Use of Hepatitis B and TT beyond the Cold Chain Experience in Indonesia and Bolivia | C Nelson |
| **10 00 - 10 30** | **Discussion** | |
| | Magnitude and time frame for changes in cold chain standards | |
| **10 30 - 11 00** | **Coffee Break** | |
| **11 00 - 11 30** | **Discussion (continued)** | |
| **11 30** | **Session 3 Vaccine demand, supply and financing** | |
| | ***Chair*** *Peter Evans*<br>***Rapporteur*** *Oni Olawale*<br>***Objectives*** *Update of situation with global vaccine demand & supply and financing mechanisms* | |
| 11 30 | Supply systems what should we expect? | P Evans |
| 11 45 | Introduction of new vaccines | J Wenger |
| | **Demand** | |
| 12 00 | Vaccine requirements estimations | C Maher |
| | **Supply** | |
| 12 15 | Procurement options | D Halliday |
| **12 30 - 13 30** | **Lunch** | |
| 13 30 | Quality considerations of procurement options | O Olawale |
| 13 45 | UNICEF Services | H S Kwon |
| 14 00 | Procurement guidelines | R Steinglass |
| **14 15 - 14 45** | **Discussion** | |

## TUESDAY 17 MARCH, (cont )

### Financing

| | | |
|---|---|---|
| 14 45 | Vaccine Independence Initiative | J Polsky |
| 15 00 | VII experience in CARK | S Guichard |
| 15 15 | Coordination of efforts for fund raising | L Belgharbi |

**15 30 - 16 00** **Coffee Break**

| | | |
|---|---|---|
| 16 00 | Efficient use of vaccines | P Evans |
| 16 15 | Industry perspective | IFPMA/EVM |

**16 30 - 17 00** **Discussion**

**17 00 - 18 00** **Group discussions**

**Cold chain of the future** Vaccines taken beyond the cold chain change in cold chain standards and the use of domestic equipment The need for and the role of the PIS, Need for freeze indicators

**Vaccine demand, supply and financing** Current ways of obtaining and using vaccines have risks and costs Some minor changes can have large gains Which changes in practice should be introduced globally and how should they be introduced

# WEDNESDAY 18 MARCH

| | | |
|---|---|---|
| **8 30 - 9 00** | **Review of priority activities** | |
| | Future cold chain & Vaccine demand supply and financing | |
| **9 00 - 10 00** | **Session 4 - Injection Safety and Injection Technologies** | |
| | ***Chair*** *Enedelsy Escobar-King*<br>***Rapporteur*** *Carin Nelson*<br>***Objectives*** *review situation and progress since sub-Technet committee meeting and Discuss framework of strategy for injections safety* | |
| | **Progress in the Regions** | |
| | Africa | S Ganivet |
| | Eastern Mediterranean | L Belgharbi |
| | Western Pacific | C Maher |
| | CARK | U Kartoglu |
| **10 00 -10 30** | **Discussion** | |
| **10 30 - 11 00** | **Coffee Break** | |
| 11 00 | AD Syringes and safety boxes Offtake | H Maruyama |
| 11 15 | Comparison of AD and standard disposable syringes | C Nelson |
| 11 30 | Ghana experience with AD syringes | S Hinson-Ekong |
| 11 45 | Incinerators in Viet Nam and Philippines | E Laurent |
| **12 00 - 12 30** | **Discussion** | |
| **12 30 - 13 30** | **Lunch** | |
| 13 30 | Economics of unsafe injections | M Miller |
| 13 45 | IMCI and injection safety | B Martin |
| 14 00 | Status of jet injectors | J Lloyd |
| 14 15 | A broader strategy for injections safety? | M Zaffran |
| **14 30 - 15 00** | **Discussion** | |
| 15 00 | Future vaccine delivery systems | J Lloyd |
| 15 15 | Vaccine Industry perspective | IFPMA/EVM |
| **15 30 - 16 00** | **Coffee Break** | |
| **16 00 - 16 30** | **Discussion** | |
| **16 30 - 18 00** | **Group discussions** | |

Injection practice surve protocols Incinerators Further work with jet injectors/ Future vaccine delivery systemsTowards a WHA resolution on injections safety? Policies on injection safety in immunization programmes



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## THURSDAY 19 MARCH

**8 30 - 9 00** **Review of priority activities**

Injections technologies
Injections safety

**9 00** **Session 5 - Mass immunization campaigns**

***Chair*** *Peter Carrasco*
***Rapporteur*** *Terry Hart*
***Objectives*** *Discuss on the basis of available data different logistics aspects of mass immunization campaigns with injectable vaccines and their impact on routine programmes*

| | | |
|---|---|---|
| 9 00 | Diphtheria campaigns in the NIS | M Ciotti |
| 9 15 | Measles campaigns in South Africa | D Phillips |
| 9 30 | Experience with campaigns in the WPR | C Maher |
| 9 45 | TT campaign in Indonesia | Dr Wibowo |

**10 00 - 10 30** **Discussion**

**10 30 - 11 00** **Coffee Break**

| | | |
|---|---|---|
| 11 00 | Adverse events during measles campaigns | J -M Olive |
| 11 15 | Guidelines for urban measles campaigns | A M Henao-Restrepo |
| 11 30 | Cost effectiveness of campaigns | B Schreuder |
| 11 45 | Meningitis and Yellow Fever Campaign in Senegal | A Da Silva |

**12 00 - 12 30** **Discussion**

How do we use campaigns to improve safety and strengthen routine infrastructure? Do we need to collect more data?

**12 30 - 13 30** **Lunch**

**13 30** **Session 6 Immunization service delivery**

***Chair*** *Bob Chen*
***Rapporteur*** *Robert Steinglass*
***Objectives*** *Review influence on the quality of EPI service of the decentralization of health systems integration with other programmes and the Organization and nature of training activities Consider the need for standards for measuring the quality of EPI services*

| | | |
|---|---|---|
| 13 30 | Impact of decentralization Zambia and Uganda | R Feilden |
| 13 45 | Integration of all logistics | M Munck |

## THURSDAY 19 MARCH, (cont )

| | | |
|---|---|---|
| **14 00 - 14 30** | **Discussion** | |
| 14 30 | WHO/EPI training strategy | B Stilwell |
| 14 45 | Training in the NIS | B Stilwell |
| 15 00 | Linking policies practices supplies and monitoring in the NIS | R Steinglass |
| 15 15 | Quality management in EPI CARK experience | Stilwell/Chen/Kartoglu |
| **15 30 - 16 00** | **Coffee Break** | |
| **16 00- 16 30** | **Discussion** | |
| **16 30 - 18 00** | **Group Discussions** | |

How can EPI take advantage of health reform and decentralization
Are current training activities and materials meeting the needs at Regional and country levels? What needs to be done, in which area, for what level?
Systems and standards for strengthening and measuring the quality of EPI services



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## FRIDAY 20 MARCH

| | | |
|---|---|---|
| **8 30** | **Session 7- Communications for surveillance** | |
| | ***Chair*** *Alfred da Silva*<br>***Rapporteur*** *Eric Laurent*<br>***Objectives*** *Define good surveillance logistics identify challenges & proposed interventions* | |
| 8 30 | Overview of Surveillance systems<br>Budgeting and resource management<br>Specimen collection and transfer | M Birmingham |
| **9 00 - 9 30** | **Discussion** | |
| 9 30 | Communications and data transfer | J Lloyd |
| **9 45 - 10 15** | **Discussion** | |
| 10 15 | Conclusions and recommendations | M Birmingham |
| **10 30 - 11 00** | **Coffee Break** | |
| **11 00** | **Session 8 - Setting priority activities** | |
| | ***Chair*** *EPI/HQ*<br>***Objectives*** *Prioritize and define specific actions that can be acted on at all levels during the next 2 years Participants to commit to include some of these activities in their respective work plans* | |
| 11 00 | Vaccine Vial Monitors | |
| 11 30 | Cold Chain of the future | |
| 12 00 | Vaccine demand forecasting supply and financing | |
| **12 30 - 13 30** | **Lunch** | |
| 13 30 | Injections Safety | |
| 14 00 | Injections technologies | |
| 14 30 | Health reform and integration | |
| 15 00 | Training | |
| **15 30 - 16 00** | **Coffee Break** | |
| 16 30 | Standards for quality of EPI services | |
| 17 00 | Communications within Technet and Technet Consultation | |
| **17 30** | **Close of Consultation** | |

# APPENDIX B.
# LIST OF PARTICIPANTS

WHO/EPI/TECHNET 98/2
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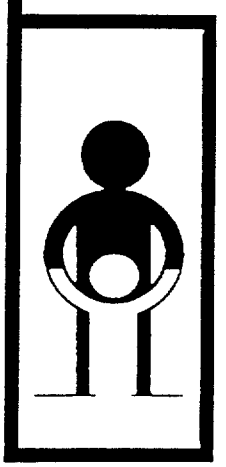
# *List of Participants*

## *Technet Consultation*

16-20 March 1998
Copenhagen Denmark



EXPANDED PROGRAMME ON IMMUNIZATION GLOBAL PROGRAMME FOR VACCINES AND IMMUNIZATION

*World Health Organization, Geneva, 1998*

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# LIST OF PARTICIPANTS

## TECHNET CONSULTATION

**Copenhagen, 16-20 March 1998**

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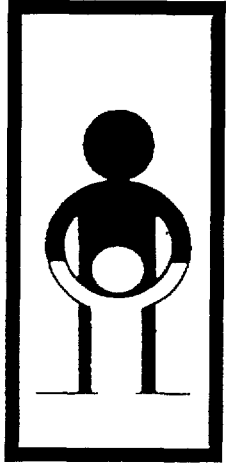
# APPENDIX C:
# LIST OF DOCUMENTS

WHO/EPI/TECHNET 98/3
English only
Distribution Limited

# *List of Documents*

## *Technet Consultation*

16-20 March 1998
Copenhagen, Denmark



EXPANDED PROGRAMME ON IMMUNIZATION GLOBAL PROGRAMME FOR VACCINES AND IMMUNIZATION

*World Health Organization, Geneva, 1998*

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# Technet Consultation
# Copenhagen 16-20 March 1998

## List of Documents

| Title | Author | Reference |
|---|---|---|
| **Session 1** | | |
| Vaccine Vial Monitors in Countries producing or procuring OPV | J Milstien | WHO/EPI/TECHNET 98/WP 6 |
| Mid-term Assessment of Vaccine Vial Monitor Impact Study Kingdom of Bhutan | D Kristensen | WHO/EPI/TECHNET 98/WP 8 |
| Impact of VVMs on Wastage and Cold Chain Monitoring During NIDs in Nepal- Draft | B Aylward<br>J Luna<br>G P Ojha<br>M B Bista<br>N Rajbhandari<br>J Andrus | WHO/EPI/TECHNET 98/WP 9 |
| Vaccine Vial Monitors Impact Study during 1997 National Immunization Days In Turkey | O Z Asfar<br>B Altay | WHO/EPI/TECHNET 98/WP 23 |
| VVM Forum News | A Bass | WHO/EPI/TECHNET 98/BK 5 |
| Summary of Field Experiences with Vaccine Vial Monitors | PATH/BASICS | WHO/EPI/TECHNET 98/BK 6 |
| Report of a study of Vaccine Vial Monitors and Oral poliovirus vaccine potency | D J Wood | WHO/EPI/TECHNET 98/BK 15 |
| **Session 2** | | |
| Home delivery of Heat Stable Vaccines in Indonesia Outreach Immunization with a pre-filled single-use Injection device | C Nelson | WHO/EPI/TECHNET 98/WP 3 |
| Cold Chain in CARK (Kazakhstan experience) | S Guichard | WHOEPI/TECHNET 98/WP 16 |
| Vaccine storage in cold climates Europe and Central Asia | A Bass<br>A Battersby | WHOEPI/TECHNET 98/WP 15 |

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| Hydrocarbon Refrigerants for Vaccine Cooling | S Sicars | WHOEPI/TECHNET 98/WP 18 |
| Preparing National Cold Chain and Logistics Policies and plans EPI Western Pacific Region | C Maher | WHOEPI/TECHNET 98/WP 22 |
| Use of Eutectics A solution to a cold chain problem at health center level? | M Munck | WHO/EPI/TECHNET 98/BK 2 |
| Experience with Cold Chain Equipment in Yemen | EPI Yemen Cold chain team and WHO Yemen | WHO/EPI/TECHNET 98/BK 4 |
| Conclusions from a Technology Cooperation in Hydrocarbon-Based Refrigeration in India for Training Needs in the Medium and Small Scale Enterprise (MSE) Sector | O Schwank N North | WHO/EPI/TECHNET 98/WP 13 |
| Inventory of cold chain equipment in south east region | T Hart | WHO/EPI/TECHNET 98/WP 26 |

## Session 3

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| Issues in developing estimates of vaccine requirements for national EPI programmes | C Maher | WHO/EPI/TECHNET 98/WP 10 |
| What is imperative for the Procurement of Vaccines? | J Milstien | WHO/EPI/TECHNET 98/WP 7 |
| Vaccine Independence Initiative | S Guichard | WHOEPI/TECHNET 98/WP 1[illegible] |
| Introduction to Hib conjugate Vaccines Monitoring of Countries Recently Adopting Routine Infant Hib Conjugate Immunization | J Wenger | WHO/EPI/TECHNET 98/BK 12 |

## Session 4

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| Disposal and destruction of syringes and needles in Viet-Nam and the Philippines | E Laurent C Maher | WHO/EPI/TECHNET 98/WP 5 |
| Progress in Improving the Safety of Injections in the EPI Western Pacific Region | C Maher | WHOEPI/TECHNET 98/WP 20 |

| Title | Author | Reference |
|---|---|---|
| Comparison of Soloshot Autodestruct Syringe to a Disposable Syringe in a National Immunization Campaign | C M Nelson | WHO/EPI/TECHNET 98/BK 3 |
| Development of a Framework to Prevent Programme-Related Adverse Events Following Immunization in Central Asian Republics and Kazakstan Technical Draft II Unicef CARK | U Kartoglu | WHO/EPI/TECHNET 98/BK 7 |
| Protocol for Evaluating Transportable Medical Waste incinerators for Primary health Care clinics - Draft | D Rogers | WHO/EPI/TECHNET 98/BK 1 |
| Unsafe injections in the developing world and transmission of blood-borne pathogens review of the literature and regional estimates | A J Kane<br>M A Kane<br>J Lloyd<br>M Zaffran | WHO/EPI/TECHNET 98/BK 11 |
| Bishkek Recommendations CARK MCH Forum Working Group on Safe Injection Practices | | WHO/EPI/TECHNET 98/BK 9 |
| Report on Injection Safety in Eritrea | A Battersby | WHO/EPI/TECHNET 98/BK 13 |
| Notes on Incineration | A Battersby | WHO/EPI/TECHNET 98/BK 14 |
| Technet Sub Committee Meeting on the Safety of Injections | WHO EPI | WHO/EPI/TECHNET 98/BK/18 |
| A Strategy to Promote Injection Safety | WHO | WHO/EPI/TECHNET 98 WP 25 |

## Session 5

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| Cost and safety of Measles immunisation Campaigns | D Phillips | WHO/EPI/TECHNET 98/WP 2 |
| Tetanus Toxoid Campaign in Indonesia | Dr Wibowo | WHO/EPI/TECHNET 98/WP 11 |
| Summary of the Experience of Mass Immunization Campaigns Western Pacific Region | C Maher | WHOEPI/TECHNET 98/WP 21 |
| Cost effectiveness of campaigns | B Schreuder | WHO/EPI/TECHNET 98/WP 1 |

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| Urban Measles Strategies The Nuts and Bolts of a Successful Approach | R Davis | WHO/EPI/TECHNET 98/BK 10 |

## Session 6

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| Integration of Health Sector Supply Systems | M Munck | WHO/EPI/TECHNET 98/WP 4 |
| Quality Management in EPI Safe Immunization Practices (CARK Experience) | R Chen<br>B Stilwell<br>U Kartoglu | WHO/EPI/TECHNET 98/WP 12 |
| Developing a new training strategy for the Expanded Programme on Immunization | B Stilwell | WHOEPI/TECHNET 98/WP 19 |
| Linking policies practices supplies and monitoring for sustainable immunization in the NIS | R Steinglass | WHOEPI/TECHNET 98/WP 14 |
| An analysis of 1995 Diphtheria Cases in the Kyrgyz Republic Unicef CARK | R Kadirova<br>U Kartoglu | WHO/EPI/TECHNET 98/BK 8 |
| Cold Chain and Immunisation Operations Management | K Engstrom<br>A Battersby<br>D Phillips | WHO/EPI/TECHNET 98/BK 16 |

# APPENDIX D·
# RECOMMENDATIONS FOR THE TECHNET CONSULTATION

**TECHNET CONSULATION**

**Copenhagen, 16-20 March 1998**

# RECOMMENDATIONS AND PROPOSED PRIORITY ACTIVITIES

**Draft 08/07/98**

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# SESSION 1 - VACCINE VIAL MONITORS

## RECOMMENDATIONS

*R1* ***Vaccine Vial Monitors on vials of OPV are a valuable addition to immunization services, enabling health workers to decide whether or not the vaccine should be used Technet recommends that appropriate VVMs for all vaccines be introduced as soon as possible***

*R2* ***The utilization of OPV/VVM must be enhanced to assure vaccine quality at point of use and to improve management of vaccine delivery***

*R3* ***Because VVMs accurately depict only the heat exposure of the vials they are on, OPV VVMs should not be used as proxy for evaluating the heat exposure of any other vaccines Other monitors (CCM, Stopwatch) should be used until such time as VVMs are available for other vaccines***

## PRIORITY ACTIVITIES

## 1 ENHANCING UTILIZATION OF VVMs ON OPV

### Training

1 1 WHO/EPI should include a time on the agenda of every regional EPI managers meeting for country reporting on the status of the VVM training effort

1 2 A resource packet of good examples of training materials and how they have been used should be compiled and distributed to each country using VVMs (PATH to compile packet, WHO/EPI to distribute it)

1 3 A ***minimum package of activities*** should be completed by every country receiving VVMs, including

- a national orientation session to be held (wherever possible, as part of other scheduled meetings) at which central and provincial staff learn key messages,

decide local policy guidelines, and determine the training approach for local staff (UNICEF to be asked to coordinate through its country offices)
- distribution by national MOHs of at least one printed item with basic messages on it to each service delivery point for immunization
- incorporation of at least a basic training component on VVMs and their use in all training sessions for polio NIDs, WHO should revise the relevant sections of the "Polio Eradication Field Guide" to cover the introduction, use and management of OPV VVMs

1 4 WHO/GPV/VSQ will explore the possibility of getting all OPV manufacturers to add brief, non-verbal instructions for using VVMs, to the package insert, as has already been done by SmithKline Biologicals

1 5 Wherever feasible (and particularly in conjunction with other studies), sub-studies of health worker and supervisor KAP regarding VVMs should be carried out to monitor the progress of training Model study protocols will be prepared by PATH and EPI and made available to WHO and UNICEF offices

1 6 With assistance from WHO and UNICEF staff and Technet members, countries should consider opportunities to incorporate basic VVM training into pre-service curricula for health workers

**Supervision**

1 7 Model items for supervisory checklists (measuring health worker knowledge and action with regard to VVMs) should be developed, pre-tested and shared with country programs and incorporated into manuals and forms

1 8 Supervisory visits should be considered as opportunities for training in VVM use

**Use of VVMs for Management of Vaccine Delivery**

1 9 While the current training materials provided by WHO offer good support for point-of-use interpretation of individual vials, they give no guidance on use for the management of vaccine storage, handling and delivery WHO/EPI should revise current materials, with the assistance of PATH and selected national EPI staff, to incorporate a set of guidelines on acceptable and unacceptable uses of OPV VVMs for enhancing management of vaccine delivery These guidelines should point out the opportunities to use VVMs for the following purposes and give examples and discussion of the rationale and limitations of each use

- stock management at district and lower levels
- allocation of resources (equipment, supervision training) to priority areas
- investigation of specific incidents or of patterns of problems
- stretching the cold chain for OPV beyond traditional limits
- taking OPV beyond the cold chain (i e., without active cooling)

- broadening cold chain equipment purchasing options or relaxing equipment replacement schedules at the periphery, based on VVM indications

These materials will be pre-tested disseminated to UNICEF and WHO field offices and to national EPI managers at various meetings

**Further studies**

1 10 Additional studies to decide whether or not to go forward with VVMs for other vaccines are no longer needed However, utilization studies, to provide feedback on how VVMs are being used and to improve their use, are still needed and should be carried out, following a WHO/EPI approved protocol Such studies should include cost-effectiveness measures and should be designed in collaboration with experts in economic analysis At least one study in each region where VVMs are used should be completed by mid-1999 Technet assistance should be provided to interested countries

**Expanding VVM use to countries procuring OPV directly**

1 11 An advocacy packet (including a summary paper on the potential impact of OPV VVM use on vaccine quality and cold chain management) and practical information on specification of VVMs in direct procurements of vaccine should be prepared by EPI and VSQ and distributed to those countries not using UNICEF/WHO procurement or expecting to begin independent vaccine procurement within the next 5 years

1 12 Work to encourage and assist qualified national vaccine manufacturers in adopting VVMs should continue (WHO/VSQ and PATH)

## 2 VVMs FOR ALL EPI VACCINES

As stated in ***Recommendation R1***, development and deployment of VVMs for all EPI vaccines should proceed as rapidly as possible A small product development team comprised of representatives from WHO/GPV , UNICEF Technical Centers and PATH will coordinate efforts to develop and implement three VVMs with different specifications but with presentations consistent with the OPV/VVMs, to cover all existing priority vaccines

2 1 From the estimates of the stability provided by Artur Galazka the group will elaborate specifications, in close collaboration with VVM and Vaccine manufacturers for three time/temperature indicators

- Category A-Highly stable vaccines Toxoids and Hepatitis B vaccine

- Category B - Vaccines with medium stability[1] BCG, Yellow Fever and measles vaccines
- Category C - Vaccines with moderate stability Pertussis (whole cell) including DPT vaccines

2 2 It was determined that development efforts for all three VVMs should proceed in parallel and as fast as possible As soon as any one of them has been validated for use in the field it should be deployed VVMs should be deployed as soon as they are available, even if any other additional indicators, such as threshold or freeze indicators, are appropriate for use on a given vaccine but are not available concurrently with the VVMs Additional indicators should be added as they are developed

**Steps for introducing Vaccine Vial Monitors on all EPI vaccines** (not all steps needed for all vaccines/ not necessarily in order of implementation)

- Inform countries and other partners of the decision and likely timeline
- Development of specifications for VVM manufacturers
- Establishment of WHO minimum requirements (including aspects regarding consistency of presentation)
- Vaccine manufacturers' agreement on specifications
- Development and production of Vaccine Vial Monitors
- Development of technology for label application
- Vaccine manufacturers' validation of Vaccine Vial Monitors
- WHO validation of VVMs
- Field studies to validate usability of VVMs with lyophilized vaccines
- Validation of correspondence between VVMs performance and vaccine potency
- Development of training materials for new VVMs
- Development of a comprehensive introduction plan

[1] Specification will include a requirement that the time/temperature indicators be removed or destroyed as the vial is opened for reconstitution This may result in different manufacturers placing the VVM on different places on the vial/cap It must be determined if this will present significant problem for training and use

# SESSION 2 - THE COLD CHAIN

## RECOMMENDATIONS

*R4* *Having reviewed the experience to date with CFC free refrigeration equipment, the relative advantages and weaknesses of various refrigerants as well as their respective Global Warming Potential, TECHNET recommends that R134a remains the refrigerant of choice for cold chain appliances*

*R5* *Any country producing or importing refrigerators/freezers with R600a or other hydrocarbon refrigerants, for their domestic market, may accept such systems for the storage of vaccines, provided that*

- *the equipment meets WHO/UNICEF standards*
- *maintenance skills are raised to a standard guaranteeing that repairs are conducted in strict compliance with safe practices for HCR*[2]
- *policy makers, managers, supervisors and health workers are made fully aware of the risks and requirements for the correct use of equipment with HCR*
- *all HCR refrigeration equipment is clearly and permanently marked with non verbal instructions indicating the refrigerant type*

*R6* *To improve the future cost effectiveness and performance of national cold chain systems, it was agreed that*

- *the performance required of refrigerators used for vaccine storage should be more closely related to the climatic and energy environment where they will be used and*
- *the equipment, temperature monitoring, management and staffing of national central stores should be evaluated according to a standard protocol and criteria*

*R7* *Recognizing that adsorbed vaccines are exposed to freezing damage in winter in temperate and cold climates, it is recommended that the TECHNET proceed with the development of Low Temperature Protected vaccine storage and transport equipment specifications, test procedures, and guidelines*

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2 hydrocarbon refrigerants

## PRIORITY ACTIVITIES

## 3 COLD CHAIN INVENTORIES

Reports were made of national cold chain equipment inventory surveys in ten countries of Africa and six countries of south east Asia These inventories have been used to plan equipment needs in the African countries and similar plans will be made in the south east Asian countries for management and training needs Although these plans represent substantial progress it was noted that

3 1 Before conducting such surveys, a clear strategy for government, bi-lateral or multi-lateral funding for the needed equipment must exist and

3 2 When conducting inventory surveys, a five year plan for equipment replacement should be prepared and a system for regular updating through a national reporting process should be installed

If these measures are not taken, expectations are raised and then frustrated and survey data quickly becomes obsolete

3 3 Having recognized the role of good quality equipment and its management in ensuring potent vaccine at the point of use, TECHNET recommends that

- governments plan and budget for preventive maintenance, parts, repair, training, supervision, placement and cyclical replacement of equipment using inventory systems which are updated regularly
- inventory systems be used which enable managers to monitor whether or not storage and service delivery points have functioning cold chain equipment appropriate to their level and operational needs
- occasional surveys be used to strengthen existing inventory management systems
- a subgroup be set up to develop specifications for equipment management systems and to review existing software

## 4 CHOICE OF REFRIGERANTS

Experience to date with CFC free refrigeration equipment was reviewed as well as the relative advantages and weaknesses of various refrigerants together with their respective Global Warming Potential TECHNET recommends that R134a remains the refrigerant of choice for cold chain appliances The use of Hydrocarbons is however is considered possible provided a number of conditions are met, as outlined in ***Recommendation R6***

4 1 Technet will work with the refrigeration industry to monitor the development and introduction of HCR and continue to evaluate them

4 2 WHO/EPI and UNEP should commit to closer coordination of their activities on CFC free equipment [3] (training materials, training courses, exchange of information )

## 5 COLD CHAIN OF THE FUTURE

### Performance Specifications for Refrigerators

5 1 Current standards for vaccine storage will not be changed However, WHO will modify the refrigerator Standard Performance Specifications and Test Procedures to present requirements for two to three climatic zones and for three zones of electrical power reliability The modified requirements will be sent to all listed equipment suppliers and the next edition of the Product Information Sheets will be modified to indicate for which zone(s) each refrigerator is suitable

5 2 Guidelines will be prepared on the selection and use of domestic refrigerators for vaccine storage The guide will include instructions on the measures (modification kit) to be taken by the user to maximise the performance of such refrigerators and maintain 0°C to +8°C storage temperatures in ambient temperature ranges set after the review of environmental databases is completed

### Certification of vaccine central stores

5 3 WHO will propose an accreditation scheme for central stores used for vaccines, involving one or more visits by WHO experts to inspect and certify stores according to a standard protocol The protocol to be drafted will include standards of refrigeration and temperature monitoring equipment, management and staffing functions The purpose of the scheme would be to raise performance to meet high standards in national central stores, to quantify necessary equipment upgrading and conduct staff training

### Specification for low temperature protected refrigerators

- Low Temperature Protected refrigerators for use in temperate and cold climates will meet WHO/EPI vaccine storage standards (0°C to +8°C) in an ambient temperature of +32°C to -10°C
- The refrigerators will maintain 0°C to +8°C in a diurnal operating range of +15°C and -10°C
- Other performance characteristics will be consistent with existing equipment specifications It is desirable that the specified operating ambient temperature

[3] see draft statement in Annex

range be consistent with the performance testing range set by the working group on the cold chain of the future for less hot climatic zones

**Proposed Process**

- Proposed operating temperature ranges for temperate and colder climates by reference to global environmental climate temperature databases will be confirmed (IT Power/WHO) This will also lead to a more explicit definition of the geographical extent of the colder populated temperate and colder zones
- WHO/GPV will develop, draft and circulate final specifications to the TECHNET working group on low temperature protection by the end of June 1998
- Guidelines will be drafted and circulated for comments to the TECHNET LTP working group by the end of April 1998 (IT Power)
- Low Temperature Protected vaccine storage equipment will be incorporated in the equipment performance specifications and test procedures manual All recommended vaccine storage and transport equipment for the temperate and cold climate zone will be expected to comply with this specification
- Manufacturers will be invited to produce equipment to Low Temperature Protection specifications Equipment meeting the LTP specifications will be included in the PIS

**Guidelines for Vaccine Shipping and Transport Guidelines**

5 4 The WHO/UNICEF guidelines[4] for international vaccine shipments should be revised and updated to incorporate low temperature protection for shipments to and in temperate and cold climates

5 5 Vaccine transport equipment for vaccine transport in temperate and colder climates should maintain safe vaccine storage temperatures in an external ambient temperature range of + 43°C to -30°C for a 48 hour period

5 6 Vaccine transport equipment should be tested for performance in this temperature range

5 7 Operational guidelines should be prepared

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4 EPI/CCIS/81 4/Rev 3, revised May 199

# SESSION 3 - VACCINE DEMAND, SUPPLY AND FINANCING

## RECOMMENDATIONS

***R8*** ***Countries must have reliable forecasts of vaccine requirements, to ensure adequate supplies are provided and vaccine wastage can be kept to a minimum, vaccine shortfalls can be eliminated, and forward budgeting can be carried out***

## PRIORITY ACTIVITIES

## 6 VACCINE FORECASTING

6 1 All countries must have forecasts of vaccine requirements based on an appropriate method of estimation, and projected for 3 to 5 years These forecasts must constitute the official national estimates of requirements used for budgeting and procurement by all involved agencies The forecasts must be reviewed prior to ordering national requirements, particularly for orders through UNICEF or WHO

6 2 WHO and UNICEF country staff and Technet members must provide necessary support to countries in preparing estimates Vaccine requirements forecasting should be an agenda item at all regional EPI meetings

6 3 Baseline data on the situation of vaccine forecasting by region must be jointly prepared by WHO and UNICEF and made available to Regional offices by the end of 1998

6 4 Existing methods of forecasting requirements will be reviewed by WHO and UNICEF and alternative methods recommended by July 1998

# SESSION 4 - INJECTIONS SAFETY AND TECHNOLOGIES

## RECOMMENDATIONS

***R9*** ***Technet highly recommends the implementation of the "strategy for safe injections" By the end of 1998 WHO/GPV/EPI should have identified partners for implementation, a structure for coordination, management and administration, and a detailed plan of action***

***R10*** ***Technet reaffirms that autodestruct syringes are the preferred type of disposable syringes and that by the year 2001 all disposables used in immunization programs should be auto-destruct***

***R11*** ***Multi-dose, needle-free injectors with a reusable fluid path may only be used for immunization if they pass standard WHO safety tests The latest evidence from laboratory tests suggests that none of the models tested to date are able to be used for immunization on this basis***

***R12*** ***Considering the safety, the operational advantages and the potential cost savings demonstrated by field trials of single-dose, pre-filled injection devices over the last several years, TECHNET encourages the wider introduction of new, injectable vaccines in this format, equipped with a Vaccine Vial Monitor (VVM)***

***R13*** ***The recommended method of destruction of used syringes and needles is incineration under controlled conditions WHO/EPI policy on the disposal of used syringes and needles must be revised to incorporate changes suggested during the consultation***

***R14*** ***As part of the "strategy for safe injections", a Task Force will be set up to develop and promote safe disposal and destruction systems which reduce human and environmental risk***

## PRIORITY ACTIVITIES

## 7 INJECTIONS SAFETY

Technet noted that, following the recommendations of the Manila consultation, a number of injection practice surveys have been conducted and that several countries have developed plans for injection safety

7 1 Measures taken to ensure safe immunization must include not only safe injection but also proper vaccine handling and reconstitution as well as safe collection, disposal and destruction of used syringes Adherence to safe immunization policies must be improved by better supervision

7 2 Immunization programs should take advantage of renewed interest in measles control & elimination to invest in safe injection

7 3 By the end of 1998, following the WPRO framework and national examples, every country should make or update a National Plan of Action for Injection Safety towards the target of 100% safe injections by the year 2000 WHO will continue to

monitor the status of these plans and will report to regional EPI Managers meetings and at the next Technet consultation

# 8 INJECTIONS TECHNOLOGIES

8 1 Sterilizable syringes and needles supplied by the UNICEF supply division should be bundled with TST spots and safety boxes

8 2 All injection equipment must be accompanied by an appropriate number of safety boxes

**Multi-dose, reusable needle-free injection devices**

8 3 WHO should continue laboratory and field tests to identify, in the shortest possible time, one or more models of safe needle-free injectors for use in immunization

**Single-dose, pre-filled injection devices**

** Pouch-and-needle devices*

The Group proposed the following measures to start the process of implementing ***Recommendation R12*** using needle-based injection devices by the end of the year 2000

8 4 Introduction and post-introduction evaluation of single-dose injection devices pre-filled with Tetanus Toxoid vaccine and Hepatitis B vaccine in several countries from at least three WHO regions The evaluation should include the necessary training and a cost-benefit analysis of the whole delivery system

8 5 Since several products including injectable contraceptives, are expected to be presented in UNIJECT, standard identification coding and packing will be developed and tested in these countries to differentiate vaccines from each other and from other products

** Needle-free injection devices*

8 6 In view of the superior safety, to the community and to health workers, of needle-free injection devices, WHO/GPV/EPI & VRD and their collaborators should conduct research

- to assess the safety, efficacy and cost-benefit of needle-free injection devices, in relation to needle-based devices, if and when pre-filled, needle-free injection devices become available
- to develop and evaluate the safety and efficacy of alternative methods of drying and injecting dried or solid vaccine formats

# 9 DISPOSAL AND DESTRUCTION

Experience accumulated through field trials in the Western Pacific region indicates the following changes to the WHO/EPI policy on the incineration of used syringes and needles are necessary

**Safe disposal**

- Used syringes and needles should be discarded in safety boxes meeting WHO/EPI specifications
- Sufficient safety boxes should be provided for all injection activities
- Reusable plastic containers are not suitable for the collection of used syringes and needles

**Transport to the point of incineration**

- Safety boxes can be transported from the point of use to a designated destruction site
- From the point of use to the point of incineration, safety boxes should be tracked to ensure that all boxes are accounted for and destroyed
- During transport, used syringes should be in closed and sealed safety boxes
- Used syringes should be transported preferably when new syringes are distributed or collected

**Destruction**

- The preferred method of destruction is incineration at high temperature (greater than 850 C) in an appropriate incinerator
- Used syringes should be incinerated in closed safety boxes
- Auto-combustion incinerators without forced ventilation should not be used unless a correctly balanced load can be assured Work will continue to identify both powered and auto-combustion incinerators which can be used for the destruction of used injection material
- If an appropriate incinerator for destruction at high temperature is not available, and intermediate storage is not feasible, open burning in a protected environment can be used as an interim destruction method for small quantities of used syringes in closed safety boxes

**Environmental legislation**

- National legislation and guidelines on incineration must be identified and complied with This concerns both destruction in high temperature incinerators and open burning

9 1 A Task Force on safe disposal and destruction will be set up to carry out the following functions

- develop performance specifications for incineration equipment with due regard to environmental concerns
- develop guidelines on the destruction of used syringes and needles with due regard to existing guidelines on the disposal of medical waste
- network with relevant agencies and organizations
- develop a project proposal and actively raise funds for its implementation

9 2 Technet will enhance advocacy for use of safety boxes and suitable incineration process

9 3 Technet members will conduct or facilitate research into alternative solutions for syringe disposal and destruction

# SESSION 5 - MASS IMMUNIZATION

## RECOMMENDATIONS

***R15 It is recommended that for all mass immunization activities conducted with injectable vaccines, staff knowledgeable of operations, logistics and safety issue be involved in the planning process This planning should be initiated at least 6 months in advance of the campaign***

## PRIORITY ACTIVITIES

## 10 ACCELERATED MEASLES CONTROL IN HIGH RISK AREAS

10 1 As a priority, WHO should ensure that the following countries who are planning mass campaigns receive technical assistance from logisticians experienced in organizing campaigns with injectable antigens Angola Burkina Faso, Congo, Democratic Republic of Congo, Mali, Mozambique, Sierra Leone These consultants should arrive in these countries as soon as possible

10 2 All Technet member are requested to forward to GPV/EPI any relevant training materials and guidelines regarding logistics for planning and implementing campaigns with injectable antigens EPI will use these materials to prepare generic guidelines

10 3 The cost analysis of campaigns conducted in Senegal and South Africa should be used as a basis for budgeting for measles campaigns in Africa

10 4 During 1998, an in-depth evaluation of all logistical aspects of measles campaigns, with special emphasis on safety, shall be conducted in two countries in Africa

# SESSION 6 - IMMUNIZATION SERVICE DELIVERY

## RECOMMANDATIONS

*R16* ***Technet recommends that the appropriate authorities and partners monitor the quality of immunization in each setting using key indicators of activity, process performance and/or outcome and respond in order to sustain the benefits of immunization***

*R17* ***A Technet sub-group consultation comprising experienced technical experts from within WHO, UNICEF, and other technical partners with experience in the NIS should be convened to focus on technical and operational problems facing the routine immunization systems of the NIS and design coordinated strategies for their resolution***

*R18* ***TECHNET recognizes and endorses the importance of integrating training in EPI and child health with IMCI, and other child health and public health initiatives, within and outside WHO***

*R19* ***Technet recommends the appointment of regional and national coordinators to support training activities, and create strong training networks***

## PRIORITY ACTIVITIES

## 11 HEALTH SECTOR REFORM (INCLUDING THE NIS)

11 1 Technet recognizes that the choice of health sector reform strategy and structure depends entirely on the local context and emphasizes the need to

- understand the effects of health sector reform and decentralization upon immunization
- take every opportunity to ensure that the benefits of immunization are sustained

11 2 A NIS sub group of Technet should be convened -- its terms of reference, mode of operation, precise focus (such as injection safety, cold chain and logistics, training, curriculum development, vaccine procurement, monitoring IEC etc ), composition the periodicity of its technical consultations, and source of funding -- should be worked out at the earliest opportunity by the secretariat of TECHNET, in consultation with other interested technical and funding partners (WHO to take the lead, by the end of May 1998)

## 12 TRAINING

12 1 To be optimally effective, training should be practice and competency based, and adopt a problem-solving approach to learning Recognizing the demand for training of this type, it is recommended that WHO HQ adapts the Cold Chain Operations Management learning materials for wider use and reproduces translates and uses them for future workshops

12 2 A flexible, modular approach to materials design is advocated, so that courses can be constructed at local levels to be specific to learning needs

12 3 Distance learning materials and methodologies should be developed and evaluated for EPI

12 4 Mechanisms should be established to ensure that

- a process exists to translate all materials in a timely manner,
- learning resources can be shared between countries, regions and HQ,
- there is wide dissemination of information regarding all EPI resources for teaching and learning,
- there are easy methods available for finding EPI teaching and learning materials

12 5 In order to promote the wide dissemination of materials, WHO and UNICEF country offices should ensure that provincial EPI offices are on the mailing lists for receipt of EPI materials

12 6 Training can be adapted to become a powerful method of advocacy among decision makers, especially politicians, donors and policy-makers The feasibility of using training in this way should be actively explored

# SESSION 7 - LOGISTICS FOR SURVEILLANCE

## RECOMMENDATIONS

***R20*** ***Considering the high priority given by the EPI to improving surveillance performance, TECHNET recommends that logisticians at all levels and epidemiologists work more closely to strengthen logistics for surveillance***

***R21*** ***Considering the risk of contamination of vaccines when they are stored together with stool specimens from AFP cases, it is recommended that specimens and vaccines are not stored in the same refrigerator, freezer or cold box Vaccine carriers which are used for specimen transfer should not again be used for vaccine storage unless they have been disinfected following WHO recommended procedures***

## PRIORITY ACTIVITIES

## 13 LOGISTICS MANAGEMENT IN SURVEILLANCE

**Specimen collection and transfer**

13 1 Packaging for international and national air shipment of polio specimens should meet IATA and UN regulations on the transfer of infectious materials WHO should work with courier services and packaging companies to assure that all countries have access to the means for shipping specimens correctly and at the lowest cost

13 2 WHO should explore such mechanisms as the Onchocerciasis Control Programme (OCP) inter-country agreement to facilitate cross border movement of specimens

**Communications for the transmission of surveillance data**

Successful data communications are primarily dependent on management rather than technology However, to facilitate data transfer at sub-national levels

13 3 suitable radio communications equipment should be identified for voice and data communications between the periphery and the district level and the information disseminated in the Product Information Sheets

13 4 Internet-based data communications should be established between the polio network laboratories, the WHO Regional offices and the EPI national managers in the countries

# Draft Joint Statement

## WHO's Expanded Programme for Immunization

## UNEP IE's OzonAction Programme

## Synergetic Cooperation in the Refrigeration Sector

### BACKGROUND

The Expanded Programme for Immunization and the OzonAction Programme share similar overall objectives - the protection of human health

The Expanded Programme for Immunization aims to protect human health against the threat of epidemic diseases by providing safe and efficient vaccination with a maximum coverage The provision of high quality vaccines requires transport and storage in a cold chain Traditional cold chain equipment was based on CFC refrigerants which will be phased out under the Montreal Protocol Newly purchased equipment will in general be based on non-CFC refrigerants which requires the training of technicians on servicing and repair of non-CFC equipment

The OzonAction Programme aims to protect human health against the threat of increased exposure to ultraviolet radiation resulting from the effects of ozone layer destruction The mandate of the OzonAction Programme is to provide technical and policy related assistance to developing countries which are Parties of the Montreal Protocol to enable them to phaseout ozone-depleting substances in a cost-efficient manner In developing countries about 70% of the ozone-depleting substances are consumed as CFCs in the refrigeration sector, and most of it during servicing of CFC equipment Therefore, training of technicians on good servicing practices including recovery and recycling for existing CFC equipment may significantly reduce the emission of CFCs to the atmosphere

### STATEMENT

The Expanded Programme for Immunization and the OzonAction Programme intend to

1) exchange information regarding relevant training activities in the refrigeration sector, network meetings and other related events

2) use training materials already developed by the two programmes or to develop joint training materials for service technicians in the refrigeration where appropriate

3) implement joint training workshops for trainers of technicians and for service technicians in the refrigeration sector where appropriate

4) establish links between health managers and public service technicians from the Ministries of Health, programme managers of the Expanded Programme for Immunization and the ozone officers of the National Ozone Units

5) use existing information channels such as newsletters, bulletins, email networks to disseminate relevant information within both programmes

| | |
|---|---|
| Dr JW Lee | Mr Rajendra Shende |
| Director, GPV | Coordinator, IE's OzonAction Programme |
| WHO | UNEP |

# APPENDIX E.
# PRESENTATION

## Procurement of Vaccine for Public Sector Programs
## A Reference Manual with WHO Recommendations

# PROCUREMENT OF VACCINES FOR PUBLIC SECTOR PROGRAMS
# A Reference Manual with WHO Recommendations

## Under Preparation in 1998 by
## USAID/BASICS/PATH and WHO

**Authors for paper presented at TECHNET, Copenhagen 16-20 March 1998:**
**Dian Woodle, BASICS/PATH & Robert Steinglass, BASICS**

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Appendix

# Purpose and History

**Easy to use guide and compendium of information on widely accepted procedures for public sector international tendering**

**Designed for personnel who are actually engaged in the task of vaccine procurement**

- **1992** Compiled informally for REACH Procurement TA
- **1996** Formalized and expanded for BASICS Procurement TA
- **1998** Addition of WHO Recommendations on Vaccine Quality

## Main Focus:

# Procedures

Step by step guide on how to purchase vaccine through international competitive bidding

Task steps are summarized in flow chart form

Text explains each step and provides supporting examples and supplementary reference material

# Why Was/Is a Practical Guide and Reference Manual on How to Buy Vaccine Needed?

# Vaccine Purchasers

1. Caught in the GAP created by
   - Sustainability
     - Banding
       - Decentralization
         - Integration
2. Currently using inappropriate
   - Government Tender Rules
     - World Bank Tender Documents

# What is new in the 1998 manual?

- WHO recommendations and discussions on vaccine quality issues
- Step-by-step tasks for pre-qualification of vaccine
- Quality Assurance for Procurement Personnel emphasizes WHO recommendations
- Expanded and updated reference material

# APPENDIX F PRESENTATION
# LINKING POLICIES, PRACTICES, SUPPLIES AND MONITORING FOR SUSTAINABLE IMMUNIZATION IN THE NIS

PRESENTATION

# LINKING POLICIES, PRACTICES, SUPPLIES AND MONITORING FOR SUSTAINABLE IMMUNIZATION IN THE NIS

**PRESENTED BY ROBERT STEINGLASS (BASICS) AT THE MEETING OF THE TECHNICAL NETWORK FOR LOGISTICS IN HEALTH (TECHNET), COPENHAGEN, 16-20 MARCH 1998**

During the six years since the dissolution of the former Soviet Union, USAID's REACH and BASICS Projects have worked in the field of immunization and vaccine-preventable disease control in the NIS countries of Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan) and in Moldova We have also worked briefly in Georgia, for 2 years in Russia, and have recently begun work in Ukraine The initial objective of this assistance was to respond to a public health crisis by guiding US humanitarian donations of vaccines and commodities This purpose was immediately expanded to include developmental technical assistance to strengthen and modernize sustainable immunization programs

The health system in the former Soviet Union worked in the past Impressive levels of immunization coverage and a high level of disease control were achieved, although at great cost Like the rest of the health system, vaccine and immunization services were heavily subsidized by the State and were provided free of charge in the public sector Under the previous system of centralized control, the Ministry of Health representatives in each former republic passively received policies, vaccines and commands formulated in Moscow and learned to become expert at following orders Despite huge differences among provinces (oblasts) in the incidence of specific diseases (e g , hepatitis B) and in general well-being, including infant mortality rates ranging from 10 to 70 per 1000 live births, top-down decrees did not acknowledge the disparate needs In their eagerness to create "homo sovieticus," Moscow was unwilling to acknowledge the heterogeneity and tailor approaches accordingly Investment in prestigious scientific pursuits eclipsed attention to the production of such unglamourous, and hence largely ignored, needs as insulated containers and ice packs to maintain the cold chain for heat-sensitive vaccines or promotion of such mundane practices like monitoring the cold chain, recording temperatures, etc

At independence, these new countries inherited a highly inefficient health system, whose previous concealed costs could no longer be financed Long-controlled vaccine-preventable infectious diseases such as diphtheria and polio rapidly re-emerged, principally due to the lack of affordable vaccines, which could only be obtained from abroad with scarce hard currency at vastly higher prices, and an insufficient and devalued budget to cover other recurrent costs of the immunization programs Furthermore, more than 70 years of isolation had left these new countries ill-equipped with the knowledge and skills required to solve such unfamiliar problems They found themselves in a vacuum with little experience in examining their data, setting their own policies, and managing their own programs for results

As in other spheres, changes brought about by the collapse of the Soviet Union necessitated that each independent country re-think its approach to immunization The countries in the NIS continue to require technical assistance to modernize their cold chain, logistics and information/monitoring systems, as well as to complete the shift from the old Soviet system to the new system In the past, individual oblasts throughout the NIS were able on short notice to contact vaccine manufacturers in Russia and get a small quantity of vaccines shipped on a moment's notice Aeroflot still served many of these oblasts Vaccine depots were not established at the Republic level Consequently at independence there was little skill at national and lower levels to manage stocks With the donation of cold chain equipment at national, oblast and rayon (district) levels, staff are still not fully familiar with how to maintain a cold chain rather than a (supposed) "fast chain" (as in the past) to preserve the vaccines In the old system, excessive numbers of doses were given to each child, but nowadays fewer doses are given -- in keeping with international guidelines It has therefore become even more important to assure that each of these fewer doses is potent at the time of administration

Technical assistance in the areas of cold chain and vaccine logistics is needed to strengthen the routine immunization system in the following areas

- forecasting of vaccine needs
- managing and storing vaccine stocks
- establishing systems for the repair and maintenance of cold chain equipment, including the development and updating of inventories and timely reporting of refrigerator malfunction

- training on modern cold chain and logistics
- development of training materials and memory aids related to cold chain and logistics
- assuring systems to promote injection safety
- assessments of remaining needs for cold chain equipment

This presentation will give examples of the interrelatedness and consequences of past assumptions and approaches, explain why many are no longer valid, and describe what is being promoted by the countries and international development agencies BASICS and other partners, including UNICEF and WHO, have helped to expose these countries to modern ideas and lessons, as appropriate from both developed and developing countries, to help them "redevelop" within their means to sustain past gains

Examples will be presented of technical approaches taken and results achieved to promote greater effectiveness, efficiency and self-reliance No longer able to squander resources, "to shoot sparrows with cannons," these countries are learning to identify and eliminate nonessential policies and practices For example, immunization schedules have been dramatically streamlined, so that fewer doses and fewer contacts with each child are required, thereby realizing great savings without sacrificing effectiveness Medical contraindications to immunization have been reduced to improve immunization coverage and increase timely protection against disease Staff have been trained in competitive purchasing (procurement) to obtain quality vaccines at competitive prices on the international market

Now, six years after independence, a variety of innovative solutions to common problems are being found and will be very briefly touched upon in the areas of policy, national planning, creation of new management structures, vaccine purchasing (procurement), management information systems including monitoring, cold chain management, modern methods of public health communications based on persuasion not coercion, and rationalization of health delivery based on cost-effectiveness analysis Some of the remaining needs and future directions will be addressed

When it comes to the former Soviet Union, international partners have also been forced to re-think and tailor their approaches to immunization and vaccine-preventable disease control This reexamination has been fascinating and challenging -- sometimes frustrating, frequently rewarding -- both for colleagues

within and outside the former Soviet Union, as past successful approaches and standard operating procedures often needed to be "unlearned" before new methods appropriate to the changed circumstances could be adopted The integrated nature of past policies, practices, training, supplies, logistics, management and monitoring must be considered to arrive at a valid diagnose of current problems and identify appropriate solutions A one-size-fits-all "cookie cutter" approach, reflexively applying solutions learned in other settings, does not work For example, donors are accustomed to providing needy countries with a minimum package of infant vaccines exclusively for child survival However, effective vaccine-preventable disease control at the high level previously achieved in these more developed countries requires that some additional booster doses be provided for older children and adults against re-emerging diseases like diphtheria

Donors have had to do their homework carefully to counter the healthy scepticism of entrenched minds, so that in the haste to achieve health reform, the countries would not throw the baby out with the bath water Perhaps the most difficult challenges in general for the health authorities have been learning to think critically for themselves and recognizing the need to achieve consensus and broader ownership in an increasingly pluralistic and rapidly evolving, resource-constrained society Working with educated colleagues, who (as stated by one Russian participant at a BASICS seminar) are "awakening as if from a long sleep to oppose fallacies imposed upon them by administrative systems, narrow specialists and false authorities," has been professionally exciting

## RECOMMENDATIONS FOR CONSIDERATION BY TECHNET

### 1 WHO, UNICEF and key technical partners should establish appropriate NIS-wide mechanisms to gather together experienced technical experts to resolve critical problems and design coordinated strategies

Region-wide programmatic, operational and technical concerns in the routine immunization systems of the NIS (such as management, financing and organization of immunization services, training, curriculum development, cold chain and logistics, vaccine procurement, injection safety, monitoring, IEC, etc ) are not being systematically addressed in any existing fora, including the Inter-agency Immunization Coordinating

Committee (IICC) or the European Advisory Group (EAG) on immunization
There are many unaddressed technical and developmental issues concerning the routine immunization services in the NIS (and perhaps elsewhere in Eastern Europe), as opposed to commodity needs, which are not adequately addressed by the IICC because it is composed largely of donors concerned with resource mobilization and coordination of donor financial support
The EAG is a forum for policy guidance to WHO, but it is concerned more broadly with all of Europe, concentrates on disease control, and does not deal at the level of technical and programmatic detail required to guide field implementation in the NIS

2 **All partners should re-commit themselves and encourage the MOHs to form within each NIS broad inclusive partnerships such as National Inter-agency Immunization Coordinating Committees (NIICC) with appropriate sub-groups to address the technical problems and resource constraints facing both the routine immunization program as well as the special vaccine-preventable disease control efforts**

Under the leadership of the MOH, the NIICC would provide a forum for the routine immunization program, in addition to the well-funded special disease control efforts (polio, diphtheria, etc), to discuss operational, programmatic, technical, and resource issues, promote common agreement on program objectives and strategies, identify needs for additional commodity and technical assistance, mobilize national and international support, ensure timely provision of commodities, and avoid duplication, gaps and inefficiencies in assistance

3 **Technical partners need to commit human and financial resources and coordinate to solve remaining problems in the areas of management, cold chain and logistics (including repair and maintenance), training, materials development, financing and organization, procurement, injection safety, monitoring, IEC, etc**

There is a continuing need for external technical guidance to assist the NIS to reconstruct their immunization programs The job is not completed

4 **WHO (EURO and HQ) should clarify their respective roles and responsibilities for cold chain and related operational areas within the NIS**

5 **Technical partners need to assess critically their own internal policies and procedures in order to facilitate field implementation in the NIS**

(e g , vaccine labeling in Cyrillic, systematic monitoring and documenting the conditions of each arrival of vaccine and equipment shipment from international suppliers, "bundling" of diluent and vaccines such that intermediate packaging of each contain the same number of vials, etc )

6 **Partners should provide the new management centers for immunization, which have been created in many of the NIS, with technical, financial, and moral support.**

7 **Technical partners need to work with MOHs to anticipate and mitigate the potential negative consequences of health sector reform and privatization on delivery of such preventive services as immunization in the NIS (e g , the discontinuation of community contact and tracking by elimination of FAPs)**

8 **Partners should make available appropriate materials in Russian and other national languages -- including policies, guidelines, tools, job aids, and background documents.**

A mechanism is needed to a) decide on which existing WHO documents should be translated into Russian in a timely manner, b) as new WHO documents are developed, to identify automatically which of them should be translated, c) determine which essential materials from WHO and non-WHO sources (some of which have already been translated) should be made more systematically available, and d) identify or develop customized materials to meet the unique needs of the NIS

9 **The technical partners should systematically assist MOHs to develop standards for pediatric immunization practices in the NIS**

10 **The technical partners need to assist the MOHs to review and streamline their cumbersome information systems and to analyze their own copious data**

in order to identify problems and make decisions based on operational realities, costs, and epidemiological considerations

11 The technical partners need periodically to assist the MOHs in each country to compile and analyze at various levels the actual vaccine wastage factors, rather than assumed values, so as to determine strategies to rationalize delivery of immunization services with increased efficiency (without sacrificing effectiveness) and improve vaccine forecasts and stock control

12 The technical partners should assist MOHs to report rapidly not only coverage achieved during NIDs/SNIDs but also vaccine remaining in stock, so that vaccine requirements can be updated and existing call-forwards can immediately be adjusted The technical partners should also use available national and sub-national data on vaccine stocks when placing orders

13 The technical partners should assist manufacturers in the NIS to develop and test appropriate one-way cold boxes, as Russia and many of the NIS continue to buy vaccines in uninsulated wood boxes from Russian vaccine manufacturers. MOHs should be encouraged to add tougher specifications regarding transport of vaccines when procuring vaccines from Russian manufacturers in the future

14 The technical partners need to review new and existing translated materials and develop a long-term training strategy and an implementation approach (including policy formulation, monitoring, IEC, etc.) which addresses provider and public concerns regarding vaccine safety, post-vaccination complications, and true and false medical contraindications to immunization

SLIDES

## UNFAMILIAR VACCINES AND PRESENTATIONS

- two BCG products (BCG & BCG-m), but in one uniform dose (0 1 ml)
- dPT-m (with antigenically reduced "d" toxoid)
- monovalent mumps
- monovalent d (antigenically reduced diphtheria toxoid)
- BCG bundled with diluent in same box
- small vial presentations (DPT,DT/Td in 2 dose vials) (measles in 1 and 2 dose vials)
- large storage volume (DPT/DT/Td - 10cc/dose)(BCG - 4cc/dose)
- liquid vaccines supplied by the liter (not doses)

## COLD CHAIN AND VACCINE LOGISTICS AT INDEPENDENCE

- poor vaccine storage and poor vaccine containers for transport
- infrequent temperature recording
- unfamiliar with international standards of vaccine handling and cold chain
- vaccine flown directly into oblasts
- no vaccine storage at republic level
- no freezers for long-term storage of viral vaccines at high level of cold chain
- oblasts requested Russian suppliers to send frequent deliveries of small quantities of vaccine with little lead time, so no need to forecast needs in advance
- vaccine delivered in supposed fast chain
- oblasts were accustomed to contacting vaccine suppliers directly and not constrained by cost
- republic level unaware of vaccine in stock and needed at lower levels
- little stock control or management experience
- small number of doses per vial
- familiar Russian vaccines with familiar Russian labels
- vaccine was cheap

## MOHS COMPENSATED FOR PERCEIVED POOR QUALITY OF VACCINE BY

- using multiple boosters to be sure some were effective (cost not an issue)

- excessive use of serologic testing as routine method of program monitoring and vaccine quality assurance

- suspending summertime vaccination

- testing every batch of vaccine for potency at oblast level

## HOW TO REDUCE VACCINE WASTAGE BY ELIMINATING INEFFICIENCIES?

- provide foreign vaccines in 10-dose vials

- re-think how frequently vials are opened

- train about WHO policy on opened vials and use of VVMs

- develop monitoring system to track vaccine use

- re-calculate wastage assumptions

- update and "fine-tune" the calculations before each vaccine "call forward"

## HOW BIG A PROBLEM IS POOR VACCINE STOCK MANAGEMENT?

*- on the routine program*

- some NIS received 200% of their primary vaccine needs (1995)

- one year's stock in Turkmenistan of measles and DPT vaccines (11/96)

- excess quantities encourage countries to return to old immunization schedules with excessive numbers of unnecessary booster vaccinations

*- on the nids*

- Turkmenistan, Kazakhstan, Uzbekistan able to do 1st round NID (1996) despite late OPV arrival

- OPV equivalent to entire year's routine supply left over from 1995 NIDs

- build-up of stocks of most heat-sensitive vaccine at lower and more risky levels of the cold chain

- 10-dose vials intended for routine program were used instead for NIDs resulting in higher wastage of 20-dose vials in routine program

- regularly determine stock balances and actual wastage rates for routine program and adjust vaccine requests

- zero stock at national level does not mean zero in the country

MANY PROVIDERS AND PUBLIC

- HAVE AN EXAGGERATED FEAR OF VACCINE "STRENGTH"

- BELIEVE CHILDREN MUST BE COMPLETELY WELL TO WITHSTAND STRESS OF VACCINATION

- BELIEVE CHILDREN ARE WEAK AND UNABLE TO MOUNT AN EFFECTIVE IMMUNE RESPONSE

-HIGH RATE OF TEMPORARY FALSE MEDICAL CONTRAINDICATIONS

-SPECIALISTS ROUTINELY CONSULTED TO DETERMINE IF CHILD IS HEALTHY ENOUGH TO BE IMMUNIZED

## IMUNIZATION COVERAGE RATES AGAINST DIPHTHERIA AND PERTUSSIS IN INFANTS BELOW 12 MONTHS OF AGE, RUSSIA 1986-96

| YEAR | DIPHTHERIA* | PERTUSSIS** |
|---|---|---|
| 1986 | 70 8 | 60 1 |
| 1987 | 79 9 | 57 8 |
| 1988 | 69 7 | 50 1 |
| 1989 | 82 7 | 60 3 |
| 1990 | 68 5 | 60 2 |
| 1991 | 68 8 | 58 8 |
| 1992 | 72 6 | 62 0 |
| 1993 | 79 2 | 65 0 |
| 1994 | 88 1 | 71 7 |
| 1995 | 92 7 | 81 0 |
| 1996 | 95 1 | 86 9 |

* DIPHTHERIA = 3 DPT OR Td, OR 2 DT

** PERTUSSIS = 3 DPT

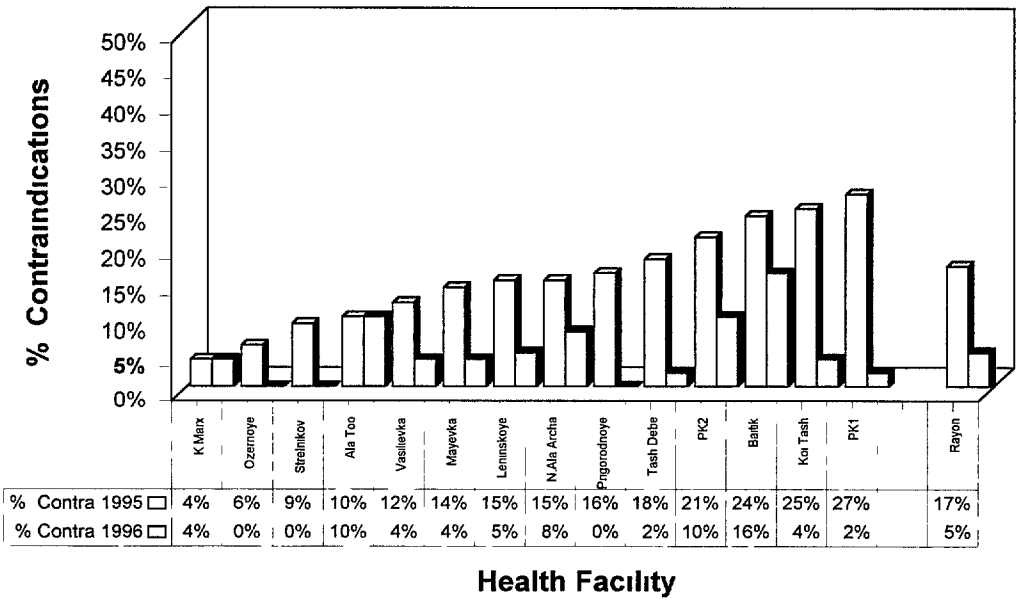
Source State Committee for Sanitary and Epidemiological Surveillance, Russia

## POLICIES NEED TO BE CHANGED

- false contraindications
- too many doses and too many visits
- mumps and measles contraindicated on same day
- annual Mantoux testing despite 4 BCG doses
- misinformation in leaflets on target age groups for DPT/DT/Td
- use of "immuno-modulators" instead of hep B on Day One
- reluctance to re-freeze thawed OPV
- measles vaccine must not be stored in freezer
- reluctance to use BCG stocks without Mantoux
- primary BCG restricted to day 5 or 6 with high wastage

## CONTRAINDICATIONS KYRGYSTAN

% contraindications to DPT immunizations by health facility, Alamudin Rayon, March 1995 & March 1996




| | K Marx | Ozernoye | Strelnikov | Ala Too | Vasilievka | Mayevka | Leninskoye | N Ala Archa | Pngorodnoye | Tash Debe | PK2 | Batik | Kou Tash | PK1 | Rayon |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| % Contra 1995 | 4% | 6% | 9% | 10% | 12% | 14% | 15% | 15% | 16% | 18% | 21% | 24% | 25% | 27% | 17% |
| % Contra 1996 | 4% | 0% | 0% | 10% | 4% | 4% | 5% | 8% | 0% | 2% | 10% | 16% | 4% | 2% | 5% |

RELATIONSHIP OF DAY OF BIRTH, ELIGIBILITY FOR BCG BY VARIOUS BCG SCHEDULES, AND AMPOULES REQUIRED IF ONE CHILD IS BORN EACH DAY

| DAY OF BIRTH | ELIGIBLE FOR BCG AT 4-5 DAYS | AMPOULE OPENED | ELIGIBLE FOR BCG AT 3-6 DAYS | AMPOULE OPENED | ELIGIBILE FOR BCG AT 1-7 DAYS | AMPOULE OPENED |
|---|---|---|---|---|---|---|
| **Sunday** | We Th | Th | Tu We Th Fr | Fr | Su Mo Tu We Th Fr | Fr |
| **Monday** | Th Fr | | We Th Fr Sa | | Mo Tu We Th Fr Sa | |
| **Tuesday** | Fr Sa | Sa | Th Fr Sa Su | | Tu We Th Fr Sa Su | |
| **Wednesday** | Sa Su | | Fr Sa Su Mo | | We Th Fr Sa Su Mo | |
| **Thursday** | Su Mo | Mo | Sa Su Mo Tu | Tu | Th Fr Sa Su Mo Tu | |
| **Friday** | Mo Tu | | Su Mo Tu We | | Fr Sa Su Mo Tu We | |
| **Saturday** | Tu We | We | Mo Tu We Th | | Sa Su Mo Tu We Th | |
| **Sunday** | We Th | | Tu We Th Fr | | Su Mo Tu We Th Fr | |
| **Monday** | Th Fr | | We Th Fr Sa | | Mo Tu We Th Fr Sa | |
| | | | | | | |
| | | | | | | |

| | | | |
|---|---|---|---|
| Minimum Number of Ampoules Required in a month | 15 | **7.5** | **5** |

*Assumes post-partum discharge from hospital on day 6

Source Robert Steinglass, BASICS, 1997

## EXPECTED BCG USAGE BY VARYING IMMUNIZATION SCHEDULES

| Number of births daily | Number immunized each month | Minimum Number of BCG ampoules required monthly if BCG given at age | | | Ratio of Doses Required to Doses Administered when BCG given at age | | |
|---|---|---|---|---|---|---|---|
| | | 4-5 days | 3-6 days | 1-7 days | 4-5 days | 3-6 days | 1-7 days |
| 1 | 30 | 15 | 7 5 | 5 | 10 1 | 5 1 | 3 3 1 |
| 2 | 60 | 15 | 7 5 | 5 | 5 1 | 2 5 1 | 1 7 1 |
| 3 | 90 | 15 | 7 5 | 6 | 3 3 1 | 1 7 1 | 1 3 1 |
| 4 | 120 | 15 | 7 5 | 6 | 2 5 1 | 1 3 1 | 1 1 |
| 5 | 150 | 15 | 7 5 | 7 5 | 2 1 | 1 1 | 1 1 |
| 6 | 180 | 15 | 9 | 9 | 1 7 1 | 1 1 | 1 1 |
| 7 | 210 | 15 | 10 5 | 10 5 | 1 4 1 | 1 1 | 1 1 |
| 8 | 240 | 15 | 12 | 12 | 1 3 1 | 1 1 | 1 1 |
| 9 | 270 | 15 | 13 5 | 13 5 | 1 1 | 1 1 | 1 1 |
| 10 | 300 | 15 | 15 | 15 | 1 1 | 1 1 | 1 1 |

## ASSUMPTIONS

Even distribution of births by day
Post-Partum discharge from hospital on day 6
BCG ampoules contain 20 infant doses of BCG, all of which can be obtained from the ampoule

Source Robert Steinglass, BASICS, 1997

## ANOTHER EXAMPLE OF HOW POLICIES AFFECT SUPPLIES BCG

- disrupted BCG supplies led to delay in primary immunization

- reluctance to give BCG to infants over 3 months old without prior testing for tuberculin sensitivity

- reluctance to give BCG booster without prior testing

- because of shortage of Mantoux tests, BCG not used

## REVIEW OF DPT/DT/Td RECORDS OF RANDOM 800 CHILDREN <3 YEARS OLD FROM 8 POLYCLINICS, BISHKEK, KYRGYZSTAN, 1994

- among infants with completed the primary series, 5% had inappropriately received Td instead of DPT vaccine

- although children 12-23 months of age should already have been fully immunized with the primary series, only 55% had received 3 doses of DPT

- an additional 22% of children 12-23 months of age had inappropriately received 2 doses of Td vaccine

- 10% of the children 12-23 months of age had not been vaccinated at all The main reasons for non-immunization in these children was supposed medical contraindications neurological disorder, allergy, meningitis, etc

- only two-thirds of children had received 3 doses of pertussis vaccine by their third year of life

[Source Kubanychbek Monolbaev, Kyrgyzstan Republican Center for Immunoprophylaxis (The results also appeared in the WHO Weekly Epidemiological Record in July 1995 )]

## Reasons for delaying immunization with DPT, DT and Td vaccines in 112 children under 3 years of age, Bishkek, Kyrgyzstan, 1993

| | Reason | Number | Percentage |
|---|---|---|---|
| 1 | Medical contraindication | 92 | 82 1 |
| | - encephalopathy | 23 | 20 5 |
| | - aggravated obstetrical history | 19 | 17 0 |
| | - acute respiratory infection | 17 | 15 2 |
| | - anemia | 11 | 9 8 |
| | - prematurity | 5 | 4 5 |
| | - diathesis | 3 | 2 7 |
| | - enterocolitis | 3 | 2 7 |
| | - others | 11 | 9 8 |
| 2 | "Medical worker's fault" | 9 | 8 0 |
| 3 | Change of residence | 11 | 9 8 |
| | Total | 112 | 100 0 |

[Source "Expanded Program on Immunization (EPI) Immunization Coverage Monitoring," Weekly Epidemiological Record, 28 July 1995 (no 30) WHO, Geneva (Based on a report from the Kyrgyz Institute of Obstetrics and Pediatrics, Bishkek, Kyrgyzstan )]

## OTHER UNUSUAL PRACTICES

- Td vaccinations in back under scapula
- reluctance to use an opened vial of BCG on more than one floor of a maternity
- BCG must be stored in a separate refrigerator
- suspension of vaccination in summer
- contraindicated children removed from denominator
- coverage (linked) not measured by age
- no monitoring during course of year against targets

## UNSAFE INJECTION PRACTICES

- reliance on house-to-house injections
- recycling of used disposables
- syringes for purchase in toy stores
- 30 syringes for immunization (inc Mantoux) per child by age 17
- pharmaceutical division responsible for stocking syringes
- no sharps containers, just buckets of disinfectants

## CURRENT COLD CHAIN AND VACCINE LOGISTICS

- Better equipment available
- Foreign vaccine arrives to republic level
- Unfamiliar vaccines with unreadable labels
- Larger quantities need storage for longer times at higher levels
- Freezers at higher levels, so no need to quickly "push" OPV for use w/i 6 months
- Stock management training needed
- Vaccine has more doses per vial, more wastage
- Vaccine less easily available and more costly
- Vaccination in summer
- Streamlined vaccination schedule (fewer doses per child)
- Less serological testing
- Fewer contraindications (but monitoring of compliance needed)
- Syringe use and disposal a big concern

| Number of Vaccinations and Contacts (0-17 years) in FSU (1994) | | | | | | |
|---|---|---|---|---|---|---|
| | Number of Vaccinations | | | Number of Contacts | | |
| Country Schedules | <= 24 months | >24 months | Total | <=24 months | >24 months | Total |
| Former Soviet Union | 11 | 11 | 22 | 8 | 9 | 17 |
| Kazakhstan | 11 | 5 | 16 | 6 | 3 | 9 |
| Kyrgyzstan | 11 | 8 | 19 | 8 | 4 | 12 |
| Uzbekistan | 14 | 7 | 21 | 7 | 3 | 10 |
| Turkmenistan | 13 | 6 | 19 | 7 | 3 | 10 |
| Tajikistan | 12 | 6 | 18 | 6 | 3 | 9 |
| Moldova | 11 | 4 | 15* | 6 | 2 | 8* |
| Georgia | 11 | 6 | 17 | 6 | 2 | 8 |
| *For comparability, excludes hepatitis B vaccine | | | | | | |

**Annual Cost Savings* (US dollars) due to Revision of Immunization Schedules after 7 MOH/USAID/WHO Policy Seminars, 1992-1995**

| Country | date of seminar | current cost per fully immunized child (0-16 years) | Annual savings due to revision of earlier immunization schedule | |
|---|---|---|---|---|
| | | | absolute | as % |
| Uzbekistan | 12/92 | 4 46 | $119,000 | 3 8 |
| Kyrgyzstan | 12/92 | 4 32 | 40,000 | 6 7 |
| Turkmenistan | 6/93 | 4 08 | 73,000 | 11 9 |
| Tajikistan | 6/93 | 3 91 | 161,000 | 15 6 |
| Kazakhstan | 6/95 | 3 60 | 246,000 | 16 5 |
| Moldova | 11/93 | 3 08 | 107,000 | 33 5 |
| Georgia | 11/93 | 3 91 | 58,000 | 15 6 |
| **Total** | | | **$804,000** | |

*Assumptions

Costs assume procurement through UNICEF (for standardization) and include vaccines (BCG $ 07 DPT $ 09 OPV $ 09 measles $ 16 DT $ 10 and Td $ 10) vaccine wastage (BCG x 2 measles x 2 DPT x 1 5 OPV x 1 5 DT x 1 5 and Td x 1 5) syringes/needles ($ 05 for one syringe and one needle) and transport and fee (20% of value of goods)

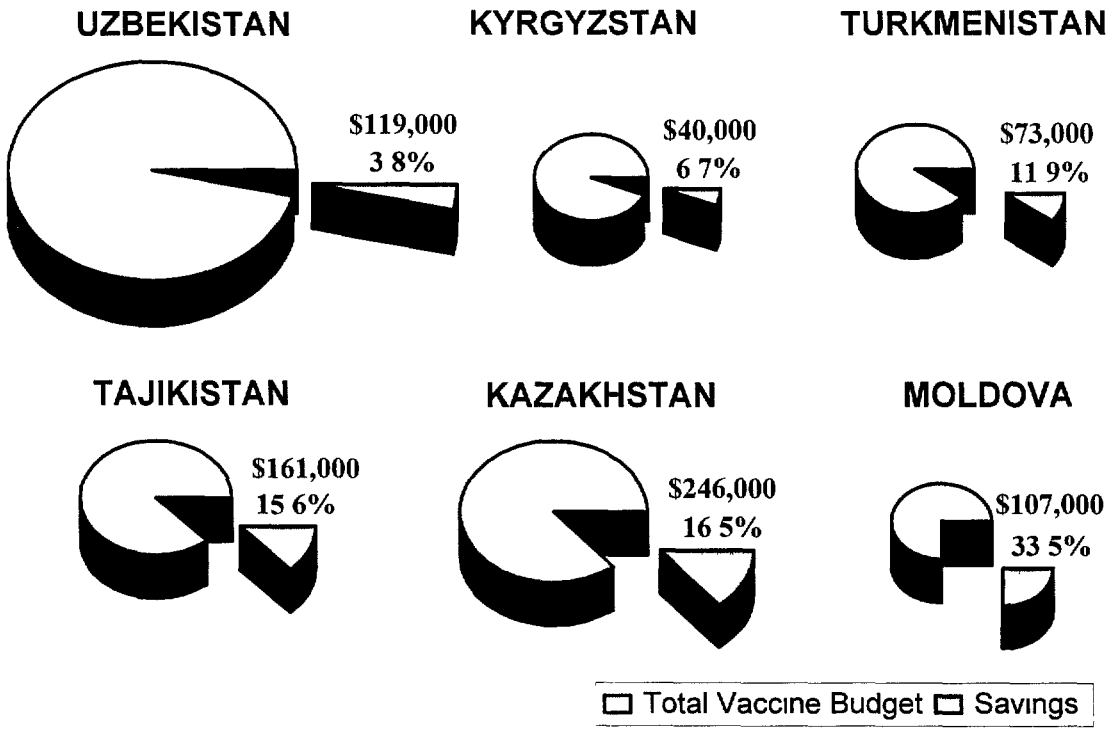
Costs exclude mumps vaccine and hepatitis B vaccine (used in Moldova)

Costs exclude significant savings due to fewer contacts required in revised immunization schedules

Population of each cohort Uzbekistan 700 000 Kyrgyzstan 130 000 Turkmenistan 133 000 Tajikistan 223 000 Moldova 69 000 Georgia 81 000 and Kazakhstan 347 000

Earlier schedule used for cost comparisons was the Soviet schedule except for Kazakhstan where the comparison is with an earlier schedule in effect from early 1994

## Annual Savings* from Revised Immunization Schedules




*Assumes procurement through UNICEF excludes savings from reduced contacts

## CUSTOMIZED IMMUNIZATION TECHNICAL ASSISTANCE IN THE NIS PROVIDED BY USAID'S REACH AND BASICS PROJECTS, 1992-1998

- policy workshops to streamline immunization schedules and reduce contraindications
- multi-donor planning exercises to assist MOHs to develop national immunization plans
- strengthening of management centers devoted to immunization
- development and dissemination of training materials and reference manuals
- training in cold chain managment and vaccine logistics
- support for refrigerator repair and maintenance
- IEC to overcome resistance to immunization from providers and public
- training in vaccine procurement
- development of monitoring systems for improved quality
- curriculum development for medical training on vaccine safety and contraindications
- rationalizing service delivery based on data analysis

## TECHNICAL ASSISTANCE NEEDED TO STRENGTHEN THE ROUTINE IMMUNIZATION SYSTEM

- forecasting vaccine needs
- managing and storing vaccine stocks
- refrigerator repair and maintenance
- training on modern cold chain/logistics
- development of training materials and memory aids
- injection safety
- assessments of remaining needs for cold chain equipment
- developing a monitoring system

## National Interagency Immunization Coordination Committees

- Promote common agreement on program objectives and strategies
- Identifie needs for additional commodity and technical assistance
- Help to mobilize both national and international support
- Help the recipient country to ensure the timely provision of commodities
- Help donors avoid duplication, gaps and inefficiencies in humanitarian assistance
- Provide a forum to discuss operational, programmatic and technical issues

## THE NEW MANAGEMENT CENTERS FOR IMMUNIZATION

*NEED TECHNICAL, FINANCIAL, AND MORAL SUPPORT*

- full time job
- bring pediatricians and epidemiologists together
- human (and financial) resources required to strengthen management and implementation of programs

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# APPENDIX G:
# SUMMARY OF PRESENTATION

# SUMMARY OF PRESENTATION

## LINKING POLICIES, PRACTICES, SUPPLIES AND MONITORING FOR SUSTAINABLE IMMUNIZATION IN THE NIS (Steinglass)

At independence, the new countries of the former Soviet Union inherited a highly inefficient health system, whose previous concealed costs could no longer be financed More than 70 years of isolation had left these new countries ill-equipped with the knowledge and skills required to solve such unfamiliar problems Technical assistance in the areas of cold chain and vaccine logistics is needed to strengthen the routine immunization system

This presentation gave examples of the interrelatedness and consequences of past assumptions and approaches, explained why many are no longer valid, and described what is being promoted by the countries and international development agencies Now, six years after independence, a variety of innovative solutions to common problems have been found and were briefly touched upon in the areas of policy, national planning, creation of new management structures, vaccine purchasing (procurement), management information systems including monitoring, cold chain management, modern methods of public health communications based on persuasion not coercion, and rationalization of health delivery based on cost-effectiveness analysis

When it comes to the former Soviet Union, international partners have also been forced to re-think and tailor their approaches to immunization and vaccine-preventable disease control The integrated nature of past policies, practices, training, supplies, logistics, management and monitoring must be considered in order to arrive at a valid diagnose of current problems and identify appropriate solutions A one-size-fits-all "cookie cutter" approach, reflexively applying solutions learned in other settings, does not work A list of 14 recommendations were proposed, ranging from organizational issues facing partner agencies to strengthen their technical coordination to detailed cold chain, logistics, training, and management issues which need to be resolved

# APPENDIX H.
# DELIBERATIONS RECORDED
# DURING SESSION ON IMMUNIZATION SERVICE DELIVERY

## RAPPORTEUR STEINGLASS

## PART A Detailed Notes

### Session 6 Immunization service delivery

6 1 Impact of Decentralization Zambia and Uganda
(Feilden)

WHO/GPV collaborated with DANIDA and USAID/BASICS, which provided technical and financial support in September 1997 to a review of the inter-relation of immunization and health sector reform in Zambia and Uganda Health sector reform varies greatly by country Contextual or environmental factors determine the nature of health sector reform In Zambia, origins were in the political process Includes a package of essential health services Revision of staffing patterns, competencies expected, and development of new cadres A now downsized MOH formulates policies, mobilizes resources, sets strategies Implementation and supervisory functions are moved outwards and downwards to a series of Boards (Central, Districts and Hospital levels) Staff are de-linked Funding is into a "common basket " The recent EPI Review confirmed important role of central level of the MOH for policy, planning, procurement, monitoring, surveillance, research The functions of EPI

Health sector reform does not have immutable implications for immunization services Much depends on the context within which and how the reforms are implemented There is no single road map When looking at health sector reform, take a holistic approach is needed, seek proponents and opponents as informers, look for opportunities and identify weaknesses, recognize resource constraints, and be prepared to be patient

Carrasco decentralization impact outcomes and not just process outcomes should be considered Persons responsible for decentralization need to be certain that outcomes of immunization programs (disease control) will be maintained
Maher Decentralization does not automatically mean a reduction immunization services, but special attention needed to ensure
Evans What has been the effect of basket funding?
Feilden Vaccine is still not in the basket
Feilden Whose goals prevail? Polio eradication, immunization, other programs? The district manager has to juggle so many priorities with insufficient resources
Lloyd Stock control need to be stressed in any decentralized system And any evidence that funds are made available for transport for outreach, which is so important for immunization?
Feilden The attitude on the part of some staff facing decentralization is "why share the expertise that I have " Many of the staff did not feel a part of the process District staff do make plans are expected to cover their outreach populations, so this was not a problem Districts have the possibility and the means to buy vehicles on a revolving fund

6 2 Integration of Logistics
(Munck)

Change inspires some fear The presentation concentrates on experiences in Zimbabwe and Zambia Vertical programs (family planning, diarrheal diseases, EPI) often have their own supply system Duplication of functions implies duplications and high costs
Under decentralization, districts administer their own budgets and are looking for means to avoid costs Rationalization is needed e g , 30% of total district health budgets went to transport costs Essential medical stores are taking over some of the functions of the vertical immunization logistics in both countries A functional analysis of the logistics system for drugs for a health center in Zambia was shown in terms of push-pull, source, frequency, forms, transport, etc The need for streamlining is apparent In Zimbabwe, drugs and vaccines are not differentiated in terms of stock management, except that vaccines are stored and handled according to their thermal characteristics In Zambia, the plan is that vaccines are supplied with drugs to districts on a monthly basis Based on experience in the Essential Drugs Program and by doing a "SWOT" analysis of strengths, weaknesses, opportunities and threats, the presenter concludes that there is no problem in integrating logistics in the two countries
Carrasco There is a big threat that countries will not get WHO-approved vaccines
Munck There are ways to ensure that vaccines will be procured from the right sources

Carrasco Logistics need to be self-sustaining and not dependent on consultants to be assured
Maher A centralized system does not assure an effective system for vaccines Safeguards need to be built in
Battersby A management link is needed to recognize the programmatic needs of vaccination programs Examples that vaccines are treated with the respect that they deserve given their relatively lower price of vaccine
Monck There are solutions Vertical logistics cannot be defended because vaccines are different Pharmacists can handle vaccines Essential drugs staff are already dealing with a more difficult set of issues and vaccines can be incorporated without difficulty Some training will be needed
Larsen 33 indicators had been developed for quality monitoring of logistics as part of the WHO/AFRO Logistics program In Zambia, the indicators showed sub-standard performance, so it would be interesting to note whether there has been any improvement since the integrated logistics was introduced
Munck No progress after Larsen left, as system was paralyzed with anticipation of health sector reforms
Wylie As part of the SWOT analysis, there should be a plan for dealing with the weaknesses Paralysis sets in before the health sector reform This is a concern This paralysis is an enormous threat which needs to be anticipated and dealt with EPI logistics must look at capital equipment and supplies Do they remain the responsibility of an integrated logistics system? And what about refrigerator spare parts? Will these be considered a part of integrated logistics?
Munck The further out you travel from Lusaka, the more enthusiastic the staff are because they can take their own decisions and have the funds to implement them The staff have money to do outreach and they remain committed to immunization

Maher Concerns about stock management ability of the pharmacists

6 3 WHO/EPI Training Session
(Stilwell)

Training is too often ad hoc It is too often selected as the solution when the problems may lie elsewhere A training review was conducted by WHO Training is ubiquitous but often not coordinated There are no regional training officers Training hasn't focused on building capacity, and there have been no measurable outputs Regions don't get the materials and the materials may not be relevant The materials are sometimes not used Training methods have been neglected WHO/GPV has concentrated on improving training Regional training officer and country networks are needed to improve the quality of training, materials development, keeping interest alive, etc No more cookbooks are needed Resource information is needed to strategically share with countries It should be available as hard copy and on diskette so it can be adapted with support of an adaptation guide The guide would help managers to determine whether training is the answer to the problem, what training materials are available, what resources are available, and which education materials are suitable Most of the training up to now has unfortunately not been geared to changing behavior

6 4 Training in South Africa
(Battersby)

Presenter described the new "Cold Chain and Immunization Operations Management A Training Course for Middle Managers " The purpose is to teach staff how to think critically to address problems and make choices, especially in the area of operations management The goal was to improve the planning and operations skills of managers at provincial and district levels The management principles of the course are applicable to other aspects of health care management Various elements of the managerial process (objective-setting, monitoring results, etc,) were applied in a series of exercises to relevant subjects of concern to EPI The course typified the "experiential learning cycle" experience, reflection, analysis, and generalization
Fife The days of EPI training are over IMCI is a vehicle for integrated training Regional training officer cannot make training plans for country levels There must be better integration Refresher service is out Pre-service training must be better integrated
Barbara Problem-based training is needed Training itself needs to be improved Regional training offices will not take over but coordinate training

So African Collaborative center in South Africa will get involved in private sector This has been a paradigm shift The capacity needs to be transferred to private sector
Distance learning needs to be tried
Me conceptual and paradign concerns IMCI does not address training for well-child services
Cold chain and refrigerator and repair
Paul EPI should try to fit into the IMCI model Assessment needs to design training

6 5 Linking Policies, Practices, Supplies and Monitoring in the NIS
(Steinglass)

AS I WAS BUSY BEING THE RAPPORTEUR, THIS EXISTS ONLY IN A SHORT SUMMARY STATEMENT, WHICH IS INCLUDED IN PART B BELOW

6 6 Quality Management in EPI --Safe Immunization Practices (CARK Experience)
(Stilwell/Chen/Kartoglu)

Kartoglu described a strategy for quality improvement CARK MCH Forum created in CAR There is a sub-group on immunization Bishkek Recommendations came out of a meeting MOH in Uzbekistan stopped measles vaccination because of AEFI, even though it was due to implementation failures A "Framework to prevent adverse events following immunization" was produced in late 1997 Development of communications materials for health workers A logbook developed Supervisory checklist developed Vaccination coverage monitoring chart SIP guidelines will be distributed as well as safe disposal boxes Treatment protocols for anaphylactic shock EFI reporting system will be developed Assessment of vaccine wastage factors will be done Curriculum review will be done Chen Adverse events can erode confidence in program and become more prominent as disease incidence falls

## PART B Summaries

### Session 6 Immunization service delivery

6 1 Impact of Decentralization Zambia and Uganda
(Feilden)

WHO/GPV collaborated with DANIDA and USAID/BASICS, which provided technical and financial support, for a review in September 1997 of the inter-relation of immunization and health sector reform in Zambia and Uganda Health sector reform varies greatly by country Contextual or environmental factors determine the nature of health sector reform In Zambia, elements of health sector reform include a package of essential health services, revision of staffing patterns, delineation of expected staff competencies, and development of new cadres The MOH, which has been downsized, is responsible for formulating policies, mobilizing resources, and setting strategies Implementation and supervisory functions have been moved outwards and downwards to a series of Boards at various levels Staff have been "de-linked" and funding has moved into a "common basket " The recent EPI Review in Zambia confirmed the essential role of the central level of the MOH for policy, planning, procurement, monitoring, surveillance, and research

The effect of health sector reform on immunization services depends on the context within which and how the reforms are implemented There is no single road map to health sector reform An open mind and a holistic approach is needed to identify opportunities and weaknesses and recognize resource constraints

Discussion Concerns were raised about the need for proponents of health sector reform and decentralization to stress impact indicators and not just process indicators The need to achieve and sustain high immunization coverage and reduce disease should be paramount There is a potential incompatibility on the one hand between global eradication or immunization targets which necessitate local commitments of scarce human and financial resources and on the other hand priorities locally determined at decentralized levels There is concern that districts will prefer to buy drugs rather than vaccines with their limited budgets

Immunization program staff should participate in the design process for health sector reform to be sure that quality immunization services are widely available to all populations

It was also expressed that peripheral staff are enthusiastic about decentralization because they can take their own decisions and have the funds to implement them The staff have money to do outreach and they remain committed to immunization

6 2 Integration of Logistics
(Munck)

Examples from Zimbabwe and Zambia were given to illustrate the integration of logistics Vertical programs often have their own supply system This duplication of functions implies high costs, especially for transport, which is a concern to districts administering their own decentralized budgets Rationalization of logistics systems is needed Essential medical stores are taking over some of the functions of the vertical immunization logistics in both countries A functional analysis of the logistics system for drugs for a health center in Zambia was shown in terms of push-pull, source, frequency, forms, transport, etc The need for streamlining is apparent In Zimbabwe, drugs and vaccines are not differentiated in terms of stock management, except that vaccines are stored and handled according to their thermal characteristics Pharmacists and other essential drugs staff are well-trained and can handle vaccines appropriately In Zambia, the plan is that vaccines are supplied with drugs to districts on a monthly basis Based on experience in the Essential Drugs Program and by doing a "SWOT" analysis of strengths, weaknesses, opportunities and threats, the presenter concludes that there is no problem in integrating logistics in the two countries

Concerns
Considerable concern was expressed that integrated logistics might result in procurement of vaccine of unknown quality Also, logistics need to be self-sustaining and not dependent on

consultants to be assured A centralized system does not assure an effective system for vaccines Safeguards need to be built in A management link must exist between the essential medical stores and the users of vaccines so that programmatic needs are properly considered Vaccines may not be treated with the respect that they deserve given their relatively lower price compared to drugs The competence of pharmacists to manage vaccine stocks was doubted Indicators to assure the quality of logistics is essential Doubts were raised that integrated medical stores would be prepared and able to look after the requirements for capital equipment and spare parts

As an integral product of any SWOT analysis, a plan for dealing with the identified logistics weaknesses should be prepared The paralysis which often sets in before the health sector reform needs to be anticipated and mitigated

6 3 WHO/EPI Training Session
(Stilwell)

Training is too often ad hoc, selected reflexively as the solution when the problems in need of correction may lie elsewhere Based on a training review conducted by WHO, training is ubiquitous but often not coordinated Training has not focused on building capacity, and there have been no measurable outputs Even if regions do receive the training materials which are developed, the materials may not be relevant And even if relevant, the materials are frequently not used Training methods have been neglected WHO/GPV has concentrated on improving training Regional training officer and country networks are needed to improve the quality of training, develop materials, and keep interest alive No more cookbooks are needed Resource information must be identified and strategically shared with countries Resource material should be made available as hard copy and on diskette so it can be adapted with support of an adaptation guide The guide would help managers to determine whether training is the answer to the problem and which training materials and other resources are available and suitable Most of the training up to now has unfortunately not been geared to changing behavior

6 4 Training in South Africa
(Battersby)

The new "Cold Chain and Immunization Operations Management A Training Course for Middle Managers,"developed by South Africa, was presented The purpose is to teach staff how to think critically to address problems and make choices, especially in the area of operations management The goal was to improve the planning and operations skills of managers at provincial and district levels The management principles of the course are applicable to other aspects of health care management Various elements of the managerial process (objective-setting, monitoring results, etc ) were applied in a series of exercises on relevant subjects of concern to EPI The course typified the "experiential learning cycle" experience, reflection, analysis, and generalization

Concerns

It was stated that the days of EPI-specific training are over IMCI has become a vehicle for integrated training and EPI should try to fit within it Regional training officers cannot make training plans for country levels There must be better integration Refresher in-service training is out of fashion Pre-service training must be better integrated Problem-based training is needed Training itself needs to be improved Regional training officers will not take over but will coordinate training There are conceptual and paradigm concerns in that a curative-oriented IMCI approach is an unlikely vehicle to address training needs for well-child services based in health facilities Cold chain and refrigerator repair and maintenance, disease surveillance, as well as other immunization and vaccine-preventable disease topics, cannot be dealt with in an IMCI context

6 5 Linking Policies, Practices, Supplies and Monitoring in the NIS
(Steinglass)

At independence, the new countries of the former Soviet Union inherited a highly inefficient

health system, whose previous concealed costs could no longer be financed More than 70 years of isolation had left these new countries ill-equipped with the knowledge and skills required to solve such unfamiliar problems Technical assistance in the areas of cold chain and vaccine logistics is needed to strengthen the routine immunization system

This presentation gave examples of the interrelatedness and consequences of past assumptions and approaches, explained why many are no longer valid, and described what is being promoted by the countries and international development agencies Now, six years after independence, a variety of innovative solutions to common problems have been found and were briefly touched upon in the areas of policy, national planning, creation of new management structures, vaccine purchasing (procurement), management information systems including monitoring, cold chain management, modern methods of public health communications based on persuasion not coercion, and rationalization of health delivery based on cost-effectiveness analysis

When it comes to the former Soviet Union, international partners have also been forced to re-think and tailor their approaches to immunization and vaccine-preventable disease control The integrated nature of past policies, practices, training, supplies, logistics, management and monitoring must be considered in order to arrive at a valid diagnose of current problems and identify appropriate solutions A one-size-fits-all "cookie cutter" approach, reflexively applying solutions learned in other settings, does not work A list of 14 recommendations were proposed, ranging from organizational issues facing partner agencies to strengthen their technical coordination to detailed cold chain, logistics, training, and management issues which need to be resolved

6 6 Quality Management in EPI -Safe Immunization Practices (CARK Experience) (Stilwell/Chen/Kartoglu)

A strategy for quality improvement developed by an immunization sub-group of the CARK MCH Forum was described A motivation to develop this strategy was the fact that there have been several deaths following immunization Uzbekistan stopped measles vaccination because of AEFI, even though it was due to implementation failures A "Framework to Prevent Adverse Events Following Immunization" was produced in late 1997 Development of communications materials for health workers, a logbook, a supervisory checklist, and a vaccination coverage monitoring chart has been developed Safe Immunisation Guidelines will be distributed, as well as safe disposal boxes and treatment protocols for anaphylactic shock An AEFI reporting system will be developed Assessment of vaccine wastage factors and curriculum review will be done

# APPENDIX I:
# RECOMMENDATION ACCEPTED BY TECHNET ON FORMATION OF A TECHNET SUBGROUP ON THE NIS

**THE WORKING GROUP ON HEALTH SECTOR REFORM (INCLUDING THE NIS) RECOMMENDS THAT**

**THE TECHNET SHOULD FORM A SMALL INFORMAL SUB-GROUP COMPRISING EXPERIENCED TECHNICAL EXPERTS FROM WITHIN WHO, UNICEF, AND OTHER TECHNICAL PARTNERS WITH EXPERIENCE IN THE NIS TO FOCUS ON TECHNICAL AND OPERATIONAL PROBLEMS FACING THE ROUTINE IMMUNIZATION SYSTEMS OF THE NIS AND DESIGN COORDINATED STRATEGIES FOR THEIR RESOLUTION**

The exact details of the TECHNET sub-group -- its terms of reference, mode of operation, precise focus (such as injection safety, cold chain and logistics, training, curriculum development, vaccine procurement, monitoring, IEC, etc ), composition, the periodicity of its technical consultations, and source of funding -- should be worked out at the earliest opportunity by the secretariat of the TECHNET, in consultation with other interested technical and funding partners (WHO/GPV TO TAKE THE LEAD, BY END MAY 1998)