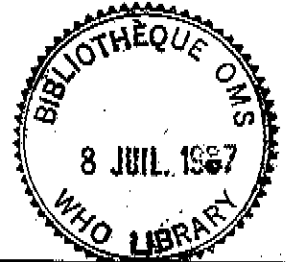




EPI Cold Chain Bibliography



WHO/EPI/CCIS/87.1

LOVE YOUR REFRIGERATOR

One syringe, one needle for each injection

VACCINE RUSH

STOP ne pas ouvrir san **STOP** do you need to open it?

DEFROST CAUTION: MOVE ALL VACCINES TO A COLD BOX OR ANOTHER REFRIGERATOR

ALTO No lo abra sin necesidad

注意

قف لا تفتح الا في الضرورة

This refrigerator PROTECTS LIVE by keeping vaccines

For the best results, vaccines should be kept at 2-8°C. Do not allow the temperature to rise above 8°C.

Keep vaccines in the cold box. Do not allow them to warm up.

Keep the door closed as far as possible to keep the cold air in.

When using vaccines, do not open the door.



EXPANDED PROGRAMME ON IMMUNIZATION





Expanded Programme on Immunization
AN ANNOTATED COLD CHAIN BIBLIOGRAPHY
 (9th Edition, January 1987)

TABLE OF CONTENTS

	<u>Page</u>
A. EPI COLD CHAIN DOCUMENTS AND PRINTED ARTICLES	
1. Cold Chain and Equipment: General	2
2. Equipment:	
2.1 Cold Rooms	4
2.2 Refrigerators and Freezers: Electric, Gas and Kerosene	5
2.3 Refrigerators and Freezers: Solar	7
2.4 Cold Boxes	8
2.5 Thermometers and Indicators	8
2.6 Syringes and Sterilization	10
2.7 Accessories	12
3. Equipment Testing and Performance Specifications:	
3.1 Protocols for Laboratory Tests	13
3.2 Protocols for Field trials and studies	14
3.3 Instructions for sending equipment for testing	14
3.4 Performance specifications	14
B. EPI COLD CHAIN TRAINING MATERIALS	15
C. AUDIO VISUAL MATERIALS	
1. Films	18
2. Posters	19
3. Slide Sets	20
4. Stickers	21
<u>ANNEX 1</u> : AHRTAG: "HOW TO" BOOKS	22
<u>ANNEX 2</u> : COMPLETE LIST OF EPI/CCIS DOCUMENTS BY YEAR OF ISSUE	23
<u>ANNEX 3</u> : COMPLETE LIST OF EPI/CCTS DOCUMENTS BY YEAR OF ISSUE	25
<u>ANNEX 4</u> : EPI COLD CHAIN ORDER FORM	27

Ordering Information: Unless otherwise indicated, all items listed in this Bibliography are available, free of charge, from WHO Country Offices, WHO Regional Offices, or WHO/EPI, Geneva. An Ordering Form is provided as Annex 4.

* This document revises and replaces the 8th edition of the Cold Chain Bibliography, (EPI/CCIS/85.5/Rev.1 issued May 1986) and all previous versions.

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A. EPI COLD CHAIN DOCUMENTS AND PRINTED ARTICLES

1. COLD CHAIN AND EQUIPMENT: GENERAL

Title: *Product Information Sheets
Reference: WHO/UNICEF/EPI.TS/86.1
Languages: English, French, Spanish
Date Printed: 1986
Length: 179 pages
Summary: The 1986/87 Product Information Sheets are an essential reference for people buying equipment for the vaccine cold chain. This revision contains detailed specifications for XXX items of equipment for the cold chain and includes comprehensive guides on how to choose the various types of equipment. This edition is printed as a separate volume for each language. (This publication contains the "Buyer's Guide for Vaccine Cold Rooms and Emergency Generators", formerly issued as document EPI/CCIS/84.5.)
 (Issued with a new reference code in the WHO/UNICEF EPI Technical Series, this document revises and replaces former versions, SUPDIR 55 AMT 1, 2, 3, 4, 5.)

Title: *Vehicle requirements for the EPI
Reference: WHO/EPI/CCIS/86.4
Languages: English only
Date Printed: 1986
Length: 7 pages
Summary: A summary document that lists some decisions to be made and also gives some warnings to be considered when buying vehicles for the EPI. Written jointly with UNICEF.

Title: *A Guide to Estimating Capacity of Equipment Required for Storing and Transporting EPI Vaccines
Reference: WHO/EPI/CCIS/86.3
Languages: English, French
Date Printed: 1986
Length: 11 pages
Summary: This paper describes how to calculate vaccine volumes at each level of the cold chain. It is an important document for all people planning and buying for the cold chain.
 (Revises and replaces document EPI/CCIS/80.10)

Title: *Guidelines on International Packaging & Shipping of Vaccines for the EPI
Reference: EPI/CCIS/81.4/Rev.2
Languages: English, French
Date printed: Revised October 1986
Length: 2 pages
Summary: Joint WHO-UNICEF guidelines aiming to improve the standards of international vaccine shipments. Guidelines are given on insulated packaging standards, storage volume standards, package labelling and recommended shipping procedures. An essential document for those involved in EPI vaccine procurement procedures.

* New entry or revised document.

Title: Storage of Vaccines
Reference: Post Graduate Doctor, February 1984 (Middle East edition), 7 (2) 110-120; and March 1984 (Asia edition), 4 (3) 60-67.
Languages: English
Date printed: 1984
Length: 6 pages
Summary: This article concentrates on four common problems in the vaccine cold chain: checking storage temperatures, monitoring performance, assessing breakdowns in the cold chain, and maintaining proper stock levels of vaccines. Suggestions are made for supervisors on how to avoid and control these problems.

Title: Immunization: A Key to Primary Health Care
Reference: Health Technology DIRECTIONS, Program for Appropriate Technology in Health (PATH), Seattle, Washington, Vol. 3, No. 1, January 1983
Languages: English
Date Printed: 1983
Length: 6 pages
Summary: A six-page issue of DIRECTIONS devoted exclusively to EPI. It gives an up-to-date and comprehensive overview of the EPI, including information on the six "EPI diseases", and recommendations on the vaccines used. Also included is a summary of the question of live versus killed polio vaccines, the development of cold chain and vaccination equipment, and programme management.

Title: How Much Does Cold Chain Equipment Cost?
Reference: WHO Weekly Epidemiological Record, No. 31, August 1983
Languages: English, French
Date Printed: 1983
Length: 2 pages
Summary: This article gives a breakdown of cold chain equipment costs and describes how initial costs for purchase and delivery constitute a small proportion of the overall costs which accumulate over the working life of equipment. It emphasises the need for budgets to be drawn up, therefore, on the basis of lifetime projections of total costs. The extent of recurrent costs - repairs, training, energy consumption and spare parts - are clearly illustrated, and a profile of equipment costs for 7 commonly used refrigerators and freezers over a 10-year period is included.

Title: Strengthening the Vaccine Cold Chain
Reference: World Health Forum 3 (4), 436-444 (1982)
Languages: English, French, Spanish; Arabic
Date Printed: December 1982
Length: 5 pages
Summary: An article for the lay reader that reviews the problems of equipment maintenance for the cold chain. All aspects of a successful maintenance system are described, the most important being a strong commitment to maintenance from the highest levels of the ministries of health.

2. EQUIPMENT

2.1 Cold Rooms

Title: *Guidelines for Establishing National and Regional Vaccine Stores
Reference: EPI/CCIS/80.15 Rev.2
Languages: English, French
Date Printed: Revised 1986
Length: 26 pages
Summary: A complete review of problems and solutions in establishing vaccine stores. Subjects covered include how much space is needed, what equipment is required, how to purchase and install a cold room, and how to improve an existing cold room.

Title: Vaccine Cold Rooms and Emergency Generators: Buyers' Guide
Reference: WHO/UNICEF/EPI.TS/86.1 (Product Information Sheets)
Languages: English, French, Spanish
Date printed: 1987
Summary: Originally produced as a document designed to assist anyone buying a vaccine cold room and/or an emergency generator, this buyer's guide has been incorporated as the section on cold rooms in the EPI Product Information Sheets.

Test Protocol for Cold Rooms

Title: Test procedure for passive container cold rooms used to store vaccines at +4°C and -20°C
Reference: EPI/07.85/CC
Language: English

* Revised document.

2.2 Refrigerators and Freezers: Electric, Gas and Kerosene

Title: *Development of better kerosene refrigerators for storing vaccines
Reference: WHO/EPI/CCIS/86.2
Languages: English, French
Date Printed: 1986
Length: 21 pages
Summary: This document summarises all the developments in kerosene refrigerators for vaccine storage over the past 7 years. The refrigerators themselves have improved, the spare parts have improved, and the training materials have improved. The paper concludes with a list of future developments that are still needed.
(Reproduced as annexes to this document are the following: "Health Centre Refrigerator RCW42" and "Comparison between Sibir and Electrolux Gas or Kerosene Refrigerators", formerly issued as documents EPI/CCIS/83.10 and EPI/CCIS/85.3/Rev.1 respectively.)

Title: *Development of fibreglass wicks for vaccine refrigerators
Reference: WHO/EPI/CCIS/86.1
Languages: English, French
Date Printed: 1986
Length: 4 pages
Summary: Test results are given for four types of fibreglass wicks. These wicks have a working life of up to 3 years and cost about half the price of cotton wicks. Three of the four types work well, but the fourth type (for the Kosmos 8" burner) has a higher fuel consumption. Tests included comparison of heat output, fuel consumption, exhaust gases and reduction in length after burning.

Title: *Fibreglass wicks
Reference: WHO Weekly Epidemiological Record, No. 40, 1986
Languages: English, French
Date Printed: 1986
Length: 2 pages
Summary: This article summarizes document WHO/EPI/CCIS/86.1 above.

Title: Inclined Refrigerators
Reference: WHO Weekly Epidemiological Record, No. 46, 1984
Languages: English, French
Date Printed: 1984
Length: 2 pages
Summary: This article summarizes the field test results on 26 refrigerators which, in general, indicated that they operated as intended.

Title: Ice Lined Refrigerator
Reference: EPI/CCIS/83.9
Languages: English, French
Date Printed: 1983
Length: 8 pages
Summary: This paper includes a summary of the field trials on the ice lined refrigerator and outlines the capacities of this appliance, which can operate either as a refrigerator or a freezer. It is capable of maintaining safe temperatures with a limited electricity supply and/or fluctuating voltages. It is also economical to run and, because of its "ice lining", is able to keep a safe temperature for nearly two days after a power failure.

* New entry.

Title: How to Convert a Refrigerator from Kerosene to Gas Operation
Reference: ---
Languages: English (and Arabic from EMRO/EPI)
Date Printed: 1983
Length: 69 pages

This booklet gives instructions for a skilled technician on how to convert two types of kerosene refrigerators to gas operation: the Sibir K230T and the Electrolux RAK100. Detailed instructions are given on what parts to order, what parts can be locally made, how to fit the new parts, and how to test the refrigerator before releasing it for use in the cold chain.

Test Protocols for Refrigerators and Freezers

Title: Standard test protocol for chest freezers used to store vaccine and frozen icepacks
Reference: EPI/06.85/CC
Language: English

Title: Standard test protocol for icepack freezers used in the cold chain
Reference: EPI/04.85/CC
Language: English

Title: Standard test protocol for refrigerators & freezers for use in the cold chain
Reference: EPI/07.82/CC
Language: English

Specifications for refrigerators and freezers

Title: Performance specification for eutectic system for vaccine storage & transport
Reference: EPI/05.85/CC
Language: English

2.3 Refrigerators and Freezers: Solar

Currently in preparation in the WHO/UNICEF Technical Series is an important and indispensable document designed to be a guide for those who are planning large solar refrigeration projects in their countries. The title will be: "Guide on the Implementation of Solar Energy for the EPI"; scheduled date of publication: September 1987.

Title: *Solar Powered Refrigerators for Vaccine Storage and Icepack Freezing - Status Summary June 1985
Reference: EPI/CCIS/85.4/Rev.1
Languages: English, French
Date Printed: July 1985
Length: 27 pages
Summary: Solar powered refrigerators are an important potential solution to the problems of poor fuel quality and fuel shortage in areas where vaccine must be stored and icepacks are needed for the transport of vaccine to immunization sites. This document summarizes the current situation on field tests and trials on photovoltaic powered refrigerator systems which have been specifically designed for this purpose.
(Revises and replaces documents EPI/CCIS/83.4, 83.2/Rev.1 and 81.5)

Title: Guidelines for supply of photovoltaic solar powered refrigerator/freezer for use in EPI
Reference: EPI/03.85/CC
Language: English
Date Printed: 1985
Length: 7 pages
Summary: This document recommends terms and conditions of supply for photovoltaic refrigerators and gives performance specifications for the components of a photovoltaic powered solar refrigerator. It can be sent as is to system suppliers with the invitation to tender.

Test Protocols for solar refrigerators and freezers

Title: Test protocol for solar refrigerators
Reference: EPI/12.81/CC Rev.1
Language: English

Specifications for solar refrigerators and freezers

Title: Specification for solar absorption (thermodynamic) refrigerators
Reference: EPI/01.82/CC
Language: English

Title: Specification for photovoltaic refrigerator
Reference: EPI/16.82/CC
Language: English

* New entry.

2.4 Cold Boxes

Title: A method of calculating the cold life of an insulated container consisting of water ice as coolant and liquid vaccine as content
Reference: EPI/03.80/CC
Language: English
Date printed: 1980
Length: 6 pages
Summary: Mathematical formulae for estimating the cold life of a vaccine carrier or cold box, given certain parameters, including size and the weight of the ice.

Test Protocols for cold boxes and vaccine packaging

Title: Standard test protocol for vaccine packaging
Reference: EPI/05.81/CC
Language: English

Title: Standard test procedure for cold boxes & vaccine carriers used in the cold chain
Reference: EPI/04.80/CC
Languages: English

2.5 Thermometers and Indicators

Title: Vaccine Cold Chain Monitor
Reference: EPI/CCIS/85.1/Rev.3
Languages: English, French
Date Printed: Revised August 1986
Length: 10 pages
Summary: This document describes the simplified Vaccine Cold Chain Monitor which has been in use since 1985. These Monitors are packed with every 3000 doses of DPT, BCG, measles and polio vaccine supplied by WHO and UNICEF. The document includes descriptions of how the monitor works and how to interpret the colour change; it also includes instructions for vaccine manufacturers on how to use and store them. A training guide on the use of the cold chain monitor exists as a module in the training course materials for primary health care logistics (Module 27).
(Revises and replaces documents EPI/CCIS/83.3 and EPI/CCIS/84.6)

Title: Measles Vaccine Indicator Study
Reference: EPI/CCIS/84.7
Languages: English, French
Date Printed: October 1984
Length: 18 pages
Summary: This document reports on a 10-country study carried out during 1982-1984 to determine the usefulness of the PATH measles vaccine potency indicator. The study showed that the indicator worked well, but measles vaccine stability improved during the study period to an extent where the indicator no longer matches vaccine potency. This indicator is now being developed as a cold chain management indicator.

Title: *Chemical Indicators for Monitoring the Cold Chain
Reference: EPI/CCIS/83.8/Rev.1
Languages: English, French
Date Printed: Revised January 1987
Length: 13 pages
Summary: This paper reviews the current status of field trials and feedback on routine use of the new cold chain monitor, the DT/TT vaccine shipping indicator, measles vaccine potency indicator, freezwatch indicator, low temperature monitor and the liquid crystal monitor. It also includes a description of each type of indicator, its function and use, and outlines the results of laboratory tests.
(Revises and replaces EPI/CCIS/81.10)

Title: Testing Thermometers for Vaccine Storage Monitoring
Reference: EPI/CCIS/80.7
Languages: English, French
Date Printed: 1980
Length: 7 pages
Summary: Useful for people intending to buy thermometers for vaccine storage. Bi-metal type, vapour pressure type and recording thermometers are checked for accuracy and recommendations made for buyers.

Title: Report on freezing of vaccine in cold boxes and a -4°C indicator for icepacks
Reference: EPI/14.82/CC
Languages: English
Date Printed: 1982
Length: 2 pages
Summary: A small study of the risks to DPT vaccine of freezing in cold boxes and carriers. The study showed that the LTM icepack indicator (PIS E6/13) is successful in avoiding freezing.

Test Protocols for thermometers & temperature recorders

Title: Standard Test Protocol for Thermometers and Temperature Recorders for the EPI
Reference: EPI/04.86/CC
Language: English

Specifications for thermometers & temperature recorders

Title: Performance specifications for thermometers and recorders
Reference: EPI/01.85/CC
Language: English

* Revised document.

2.6 Syringes and Sterilization

Title: *Choice of Injection Equipment
Reference: WHO/UNICEF/EPI.TS/86.2
Languages: English, French, Spanish
Date Printed: 1986
Length: 7 pages
Summary: This document is both a statement of WHO and UNICEF policy on the choice of injection equipment and a detailed technical guide to purchasers of syringes and needles.

Title: *Choice of Syringes for the EPI
Reference: WHO Weekly Epidemiological Record, 6, February 1986
Languages: English, French
Date Printed: 1986
Length: 2 pages
Summary: This article compares the costs of reusable syringes against disposable syringes and jet injectors for the EPI. It concludes that reusable syringes combined with steam sterilizers are the most cost effective method of supplying a sterile needle and syringe for each injection.

Title: EPI Syringe and Sterilizer Study
Reference: EPI/CCIS/85.6
Languages: English, French
Date Printed: 1985
Length: 27 pages
Summary: Report of laboratory and field assessments of plastic reusable syringes and steam sterilization equipment in four countries, developed for the Expanded Programme on Immunization.
(Revises and replaces EPI/CCIS/83.7 and 82.7)

Title: Summary Report on Jet Injector Testing in the Laboratory and in the Field
Reference: EPI/CCIS/80.14
Languages: English, French
Date Printed: 1980
Length: 10 pages
Summary: This document summarises tests on four models of jet injector which were subjected to 120,000 shots in a laboratory and 240,000 shots in Ghana. They were monitored for variations in dosage, jet velocity, frequency of breakdown and spare parts consumption. Two of the jet guns failed before 10,000 shots had been completed; the remaining two failed before 30,000 shots. (This document had been archived but, due to current interest in the subject it has been included again in this update of the Bibliography.)

* New entry.

Test Protocols for syringes and sterilizers

Title: Standard test protocol for microbiological testing of instrument sterilizers

Reference: EPI/03.83/CC

Language: English

Title: Test protocol of sterilizable plastic syringes

Reference: EPI/02.83/CC

Language: English

Title: Test protocol for instrument sterilizers

Reference: EPI/10.82/CC Rev.1

Language: English

Title: Outline specification for testing the performance of 1 ml syringes for subcutaneous and intramuscular injection

Reference: EPI/10.81/CC Rev.1

Language: English

Specifications for syringes and sterilizers

Title: Performance specifications for a single use vaccine injection device

Reference: EPI/05.86/CC

Language: English

Title: Outline specification for portable steam sterilizers

Reference: EPI/11.82/CC Rev.1

Language: English

Title: Specification for a 1-dose 1 ml sterilizable syringe

Reference: EPI/16.81/CC Rev.1

Language: English

Title: Specification for a one-dose BCG syringe

Reference: EPI/08.81/CC Rev.3

Language: English

2.7 Accessories

Title: Third Summary Report on Testing Voltage Stabilizers for Vaccine Refrigerators and Freezers
Reference: EPI/CCIS/83.6
Languages: English, French
Date Printed: 1983
Length: 7 pages
Summary: This paper summarizes the results of four rounds of tests which have been conducted since 1979 on the performance, durability and electrical safety of automatic voltage stabilizers. Four stabilizers are considered suitable for use with vaccine refrigerators and full technical details are given for these models, including the costs and purchasing descriptions. (Revises and replaces documents EPI/CCIS/81.3 and EPI/CCIS/80.3)

Title: Freezing Icepacks
Reference: WHO Weekly Epidemiological Record, No. 46, 1983
Languages: English, French
Date Printed: 1983
Length: 2 pages
Summary: This article describes laboratory tests that show the freezing capacity of a refrigerator/freezer can be increased by up to 3 times by carefully positioning the icepacks.

Title: Universal spare parts (by P. Dalsgaard)
Reference: EPI/03.82/CC
Language: English
Summary: This booklet, which is included in the kits of universal spare parts, describes how to use each part in the kit and how to substitute one part for another.

Title: Toolkit for EPI refrigerator repair technicians
Reference: EPI/15.82/CC Rev.7
Language: English
Summary: A list of tools including suppliers and prices for the repair technicians tool kit.

Title: Technical report on an Alarm System to be used with Vaccine Thermometer Recorders and Thermometers
Reference: EPI/CCIS/79.4
Languages: English, French
Date Printed: 1979
Length: 3 pages
Summary: A description of a tested alarm system suitable for vaccine stores and refrigerators in tropical countries. Installation and operating instructions are also given.

Test Protocol for voltage control units

Title: Standard test procedure for automatic voltage control units
Reference: EPI/02.86/CC
Language: English

3. EQUIPMENT TESTING AND PERFORMANCE SPECIFICATIONS +

Currently in preparation is a new document in the WHO/UNICEF Technical Series which will include test protocols and performance specifications for all equipment used in the EPI cold chain. This document will revise and replace the individual documents listed below in this section. Scheduled date of publication: approximately September 1987.

3.1 Protocols for Laboratory Tests

- Title: Standard test procedure for cold boxes & vaccine carriers used in the cold chain
Reference: EPI/04.80/CC
- Title: Standard test protocol for vaccine packaging
Reference: EPI/05.81/CC
- Title: Outline specification for testing the performance of 1 ml syringes for subcutaneous and intramuscular injection
Reference: EPI/10.81/CC Rev.1
- Title: Test protocol for solar refrigerators
Reference: EPI/12.81/CC Rev.1
- Title: Standard test protocol for refrigerators and freezers for use in the cold chain
Reference: EPI/07.82/CC
- Title: Test protocol for instrument sterilizers
Reference: EPI/10.82/CC Rev.1
- Title: Test protocol of sterilizable plastic syringes
Reference: EPI/02.83/CC
- Title: Standard test protocol for microbiological testing of instrument sterilizers
Reference: EPI/03.83/CC
- Title: Standard test protocol for icepack freezers used in the cold chain
Reference: EPI/04.85/CC
- Title: Standard test protocol for chest freezers used to store vaccine and frozen icepacks
Reference: EPI/06.85/CC
- Title: Test procedure for passive container cold rooms used to store vaccines at +4°C and -20°C
Reference: EPI/07.85/CC
- Title: Standard test procedure for automatic voltage control units
Reference: EPI/02.86/CC
- Title: Thermometers and temperature recorders for the EPI
Reference: EPI/04.86/CC
- Title: Standard test protocol: Needles
Reference: EPI/06.86/CC

+ All documents in this section, with the exception of two (as indicated in text), are available in English only. For this reason, language is not included for each entry.

3.2 Protocols for Field Trials and Studies

Title: Protocol for a Cold Chain Review Using Vaccine Cold Chain Monitors
Reference: EPI/CCIS/85.2
Languages: English, French
Date Printed: May 1985
Length: 8 pages
Summary: This document describes a method for using Vaccine Cold Chain Monitors for cold chain reviews. These reviews take 6-7 months to complete and give detailed information on the status of a nationwide cold chain.

Title: Outline protocol for a country study: EPI syringe and sterilization trials
Reference: EPI/04.83/CC

Title: Outline protocol for field study of a solar (photovoltaic) refrigerator
Reference: EPI/03.86/CC

3.3 Instructions for Sending Equipment for Testing

Title: Instructions for sending cold chain equipment for testing to Consumers Association/Harpenden Rise Laboratories, UK
Reference: EPI/04.81/CC Rev.3

Title: Instructions for sending cold chain equipment for testing by PAHO/WHO Test Facility, UNIVALLE, Cali, Colombia
Reference: EPI/02.82/CC Rev.1 (available in English and French)

Title: Equipment testing laboratories and inspection agencies
Reference: EPI/08.86/CC

3.4 Performance Specifications

Title: Specification for a one-dose BCG syringe
Reference: EPI/08.81/CC Rev.3

Title: Specification for a 1-dose 1 ml sterilizable syringe
Reference: EPI/16.81/CC Rev.1

Title: Specification for solar absorption (thermodynamic) refrigerators
Reference: EPI/01.82/CC

Title: Outline specification for portable steam sterilizers
Reference: EPI/11.82/CC Rev.1

Title: Specification for photovoltaic refrigerator
Reference: EPI/16.82/CC

Title: Performance specifications for thermometers and recorders
Reference: EPI/01.85/CC

Title: Performance specification for eutectic system for storage and transport of vaccine
Reference: EPI/05.85/CC

Title: Performance specifications for a single use vaccine injection device
Reference: EPI/05.86/CC

Title: Standard performance specifications for thermometers and recorders
Reference: EPI/07.86/CC

B. EPI COLD CHAIN TRAINING MATERIALS

Title: *EPI Training Information Sheets
Reference: WHO/UNICEF/EPI.TS/86.4
Date printed: May 1987
Length: 22 pages
Summary: This document lists all EPI training materials available, produced by WHO, UNICEF and others. Each training course or item is listed on a separate sheet, with full details on availability, cost, objectives, requirements, length of time necessary, languages available etc. An essential document for all people planning any EPI training.

Title: TRAINING COURSE OF PRIMARY HEALTH CARE LOGISTICS

- Modules:
1. How to estimate requirements for an existing store (34 pages)
 2. How to store supplies (38 pages)
 3. How to distribute supplies (12 pages)
 4. How to keep records and calculate wastage (18 pages)
 5. How to control quality of stocks (21 pages)
 6. How to estimate requirements for the first time (9 pages)
 7. How to estimate chloroquine requirements for the first time (14 pages)
 8. How to estimate ORS packet requirements for the first time (12 pages)
 9. How to estimate vaccine requirements for the first time (12 pages)
 10. How to estimate contraceptive supply requirem. for new store (14 pp)
 11. How to estimate essential drug requirements for first time (19 pages)
 12. The cold chain game (24 pages)
 13. How to improve communication (10 pages)
 - 13.1 Annex to "How to improve communication (4 pages)
 14. How to look after a compression refrigerator (11 pages)
 15. User's handbook for compression refrigerators (27 pages)
 16. How to look after a kerosene refrigerator (22 pages)
 17. User's handbook for kerosene and electric refrigerators (67 pages)
 18. How to look after a gas refrigerator (27 pages)
 19. User's handbook for gas refrigerators (51 pages)
 20. How to keep stocks of spare parts (35 pages)
 21. How to look after a cold store (15 pages)
 22. User's handbook for cold stores (54 pages)
 23. Instructors guide (29 pages)
 24. Evaluation questionnaire (4 pages)
 - *25. How to look after a solar powered refrigerator (in preparation)
 - *26. User's handbook for solar powered refrigerators (40 pages)
 - *27. How to use the vaccine cold chain monitor (18 pages)

Languages: English, French (all modules)
Arabic (modules 1-24);
Portuguese (modules 14,16,18,21);
Spanish and Swahili (modules 15,17,19,22)

Cost: Small quantities: free; larger quantities: US\$ 40.00 per set (or \$1.50 per module).

Summary: This course is designed for health personnel engaged in primary health care and concentrates on the logistics of five programmes: Malaria Action Programme, Diarrhoeal Diseases, the Expanded Programme on Immunization, Maternal and Child Health, and Essential Drugs. It is made up of independent booklets or modules which cover some of the tasks and techniques essential to the efficacy of primary health care. Since most of the modules are complete in themselves, courses of 1 to 10 days can be given with modules selected according to training needs and constraints.

* New entry.

Title: REPAIR TECHNICIAN'S COURSE FOR COMPRESSION & SOLAR REFRIGERATORS:

- Modules:
- A. Servicing and repair techniques (91 pages)
 - B. Faults and fault finding (29 pages)
 - C. Repair work (44 pages)
 - D. Spare parts (34 pages)
 - E. Task sheets and progress tests (46 pages)
 - *E/Add.1 Task sheets on solar refrigerators (24 pages)
 - F. Instructor's handbook (86 pages)
 - G. Spare parts lists (loose leaf file) (96 pages)
 - *H. Fault-finding & repair of solar powered refrigerator (56 pages)

Languages: English, French (all modules)
 Arabic, Portuguese and Spanish (modules A-C)

Cost: Small quantities: free; larger quantities: US\$14 per course (or \$1.50 per module).

Summary: This series of nine booklets make up a 10-day training course for compression and solar refrigerator repair technicians. In this period the technicians learn how to make the most radical repairs to a compression and solar refrigerators. (For organization of this course see document EPI/CCIS/82.9 Rev.1, listed below.)

Title: USER'S HANDBOOK SERIES

- Modules:
- 14. How to look after a compression refrigerator (11 pages)
 - 15. User's handbook for compression refrigerators (27 pages)

 - 16. How to look after a kerosene refrigerator (22 pages)
 - 17. User's handbook for kerosene and electric refrigerators (67 pages)

 - 18. How to look after a gas refrigerator (27 pages)
 - 19. User's handbook for gas and electric refrigerators (51 pages)

 - 21. How to look after a cold store (15 pages)
 - 22. User's handbook for cold stores (54 pages)

 - *25. How to look after a solar powered refrigerator (in preparation)
 - *26. User's handbook for solar powered refrigerators (40 pages)

Languages: English, French (all modules)
 Arabic (modules 14,15,16,17,18,19,21,22)
 Portuguese (modules 14,15,18,21)
 Spanish and Swahili (modules 15,17,19,22)
 Blank version available for overprinting in any language

Cost: Free in small quantities; larger quantities US\$1.50 per module.

Summary: Ten booklets designed for refrigerator and cold room users. Each booklet describes daily, weekly and monthly maintenance tasks. Each of these tasks is described in detail with many illustrations. Fault finding charts are also given to make sure that the users can get the best performance from their vaccine storage equipment. These booklets form the basis of a 1-3 day course for training health centre staff who use refrigerators to look after them and perform minor repairs with simple tools. (For organization of this course see document EPI/CCIS/82.9 Rev.1, listed below.)

Note: The User Handbook Series are also included in the Training Course for Primary Health Care Logistics (as per module numbers listed above).

Title: MANAGE THE COLD CHAIN
Languages: English, French, Spanish
Length: 99 pages
Date printed: Revised February 1986
Cost: Small quantities: free; larger quantities: US\$2.50 per module.
Summary: Training booklet on the cold chain which forms part of the EPI Mid-Level Managers Training Course. The most comprehensive general training document on the cold chain, it includes descriptions of all new equipment, with emphasis placed on maintenance, and also gives information on the use of chemical indicators.

Title: ORGANISING A COURSE ON REFRIGERATOR REPAIRS
Reference: EPI/CCIS/82.9 Rev.1
Languages: English, French
Date Printed: 1982
Length: 23 pages
Summary: This paper describes how to organize two types of refrigerator repair courses using WHO training materials (see above): one course uses four "User Handbooks" (15,17,19,22) to teach simple maintenance and repairs; the other course uses the Repair Technician's Handbook for Compression Refrigerators (based on modules A-G). For each course details are given on how many people can be trained, what facilities are required, what tools are needed, and a countdown of actions that should be taken before the course can begin.
Note: This document was written before the solar modules existed, so it does not include guidelines for a solar refrigerator repair course.

Title: COLD CHAIN EQUIPMENT GAME AND ANSWER SHEETS
Reference: EPI/01.86/CC
Language: English
Date printed: 1986
Length: 7 pages
Summary: This simulation game is designed to teach people how to select equipment from the Product Information Sheets and how to make decisions on equipping a cold chain.

Title: INSTRUCTION BOOKLET: STEAM STERILIZERS
Reference: Ordering Code: T/M10
Language: English/French
Date printed: 1986
Length: 20 pages
Cost: Free in small quantities from WHO/EPI; UK&1.00 per copy for larger quantities available direct from Prestige Group Limited, Prestige House, Medical Division, 14-18 Holborn, London EC1N 2LQ, United Kingdom.
Summary: This booklet is supplied as an instructional guide with each steam sterilizer supplied by Prestige Medical or Kelomat. It is also designed for use in training nurses and health assistants who are responsible for sterilization of injection equipment.

Title: HOW TO BOIL INSTRUMENTS
Reference: Ordering Code: T/M11
Language: English
Date printed: 1987
Length: 11 pages
Cost: Free in small quantities from WHO/EPI; US\$1.00 per copy for larger quantities.
Summary: A short training module designed for nurses and vaccinators to reinforce the steps needed to ensure that immunization equipment is properly sterilized.

C. AUDIO VISUAL MATERIALS

1. FILMS

Subject: How vaccines are made

Languages: English

Ordering Code: CCF/1 (film); CCV/1 (video)

Cost/Availability: US\$250 per film from the Division of Public Information, World Health Organization, Geneva. US\$20 per video cassette from WHO/EPI, Geneva.

Description: Available as a 16mm, optical sound track or VHS type video cassette, this 30-minute colour film shows the great care that goes into manufacturing vaccines for the EPI. The film ends with the new vaccine being taken to the airport to be sent overseas. The story is continued in the Cold Chain film, "How vaccines should be handled", described below.

Title: The Cold Chain or How Vaccines Should Be Handled

Languages: English, French

Ordering Code: CCF/2 (film); CCV/2 (video)

Cost/Availability: US\$250 per film from the Division of Public Information, World Health Organization, Geneva. US\$20 per video cassette from WHO/EPI, Geneva.

Summary: Available as a 16mm, optical sound track or VHS type video cassette, this 30-minute colour film describes the cold chain from the airport to a remote village in Ghana. It illustrates the precautions that have to be taken and the kinds of mistakes that can occur.

Title: The Cold Chain

Languages: Film: Arabic, English, French, Portuguese, Spanish

Video: Arabic, English, French

Ordering Code: CCF/3 (film); CCV/3 (video)

Cost/Availability: US\$70 per film from WHO/EPI, Geneva.

US\$20 per video cassette from WHO/EPI, Geneva.

Summary: Available both on 16 mm, optical sound track and VHS type video cassette, this 6-minute animated colour film aims to reinforce the idea that if vaccines are not kept cold the children who receive the vaccine will not be protected against the disease.

2. POSTERS

Subject: Has your DPT or TT vaccine been frozen? (ORDERING CODE: CCPS/2)
Languages: English, French, Spanish
Cost: Free in small quantities; US\$300 per 1000 posters.
Description: A multilingual poster showing a simple test that can be done in a health centre to see if these vaccines have been frozen and are no longer potent.

Subject: Look after your vaccines (ORDERING CODE: CCPS/3)
Look after your cold chain equipment (ORDERING CODE: CCPS/4)
Languages: English, French, Portuguese
Cost: Free in small quantities; US\$600 per 1000 posters.
Description: Two foldout posters that use the photographs from the two cold chain slide sets (listed under section 3 below). The poster "Look after your vaccines" reminds health workers to load the refrigerator correctly, and show how to pack a cold box and despatch vaccines. The poster "Look after your cold chain equipment" reminds health workers how to get the best performance from a vaccine refrigerator.

Subject: Look after your vaccines every day (ORDERING CODE: CCPS/5)
Look after your vaccines every week (ORDERING CODE: CCPS/6)
Look after your vaccines every month (ORDERING CODE: CCPS/7)
Languages: English (French version discontinued)
Blank version available for overprinting in any language
Cost: Free in small quantities; US\$200 per 1000 posters.
Description: A set of three comic strip style posters to remind field level health workers of the steps to be taken every day, week and month to ensure that vaccine is available in the proper quantities and properly protected.

Subject: Love your refrigerator (ORDERING CODE: CCPS/8)
Languages: English, French
Blank versions available for overprinting in any language
Cost: Free in small quantities; US\$350 per 1000 posters.
Description: A poster designed to persuade people to care for their vaccine refrigerators.

Subject: Only use sharp, straight needles (ORDERING CODE: CCPS/9)
Rinse, clean, then sterilize (boiling method) (ORDERING CODE: CCPS/10)
Vaccine vials, Finish or destroy open vials (ORDERING CODE: CCPS/11)
Languages: English, French
Cost: Free in small quantities; US\$200 per 1000 posters.
Description: A set of three posters designed for the health centre to improve vaccination procedures.

Subject: This refrigerator protects lives (ORDERING CODE: CCPS/12)
Languages: Arabic, English, French, Portuguese, Spanish
Cost: Free in small quantities; US\$275 per 1000 posters.
Description: A poster intended for the door of a vaccine refrigerator. It gives instructions on how to load the refrigerator to get the best performance.

Subject: One syringe, one needle for each injection (ORDERING CODE: CCPS/13)
Language: English, French
Cost: Free in small quantities; US\$200 per 1000 posters.
Description: A poster for use in health centres, designed to encourage better immunization procedures.

Subject: Rinse, clean, then sterilize (Pressure method) (ORDERING CODE: CCPS/14)
Language: English, French
Cost: Free in small quantities; US\$200 per 1000 posters.
Description: A poster designed to encourage better immunization procedures in health centres - similar to poster CCPS/10 above, but showing the use of a pressure sterilizer.

3. SLIDE SETS

Subject: Looking after your vaccine*
Language: French
Cost: Free in small quantities; US\$7.00 per set of 20 slides in larger quantities.
Description: A set of 20 colour slides with 8 pages of accompanying text to train field level workers in proper vaccine handling. Practical suggestions are given on procedures to conserve vaccines in an emergency. This is a twin set to the one described below.

Subject: Looking after your cold chain equipment*
Languages: French
Cost: Free in small quantities; US\$7.00 per set of 20 slides in larger quantities.
Description: A set of 20 colour slides with 10 pages of accompanying text. This is a twin set to the one described above. It illustrates the daily maintenance required to keep cold chain equipment running effectively. Practical suggestions are made on how to get the best performance out of refrigerators used for storing vaccines.

Subject: Cold Chain - Target Diseases
Languages: English
Cost: This combination set has been prepared for sale and distribution by Teaching Aids at Low Cost (TALC) and requests for sets should be addressed to: Teaching Aids at Low Cost, P O Box 49, St. Albans, Herts. AL1 4AX, UK.
Description: This set of 24 slides, accompanied by 16 pages of text, combines slides from the existing cold chain slide sets (listed above) and the EPI disease recognition slide set. The original presentation of these sets has been simplified and improved and some new slides have been added.

Subject: Cold Chain
Languages: English
Cost: This set has been prepared for sale and distribution by Teaching Aids at Low Cost (TALC) and requests for sets should be addressed to: Teaching Aids at Low Cost, P O Box 49, St. Albans, Herts. AL1 4AX, UK. Small quantities available from WHO/EPI Geneva.
Description: A set of 48 slides, with 29 pages of accompanying text, which concentrates on two aspects of the cold chain: how to look after vaccine and how to look after cold chain equipment. This new set includes and updates the slides from the previous two sets of slides, listed above (now available only in French).

* When current stocks of these two French slide sets (24 slides each) are depleted, they will be replaced by the single set of 48 slides available at present only in English (described above: "Cold Chain").

4. STICKERS

Sticker: DEFROST WHEN ICE BUILDS UP
Language: English, French, Portuguese, Spanish
Cost: Free in small quantities; US\$65 per 1000 stickers.
Description: A sticker for a refrigerator door.

Sticker: STOP. DO YOU NEED TO OPEN IT?
Languages: Arabic, Chinese, English, French, Spanish
Cost: Free in small quantities; US\$65 per 1000 stickers.
Description: A sticker for a refrigerator door.

Sticker: VACCINE. RUSH
Languages: Arabic, English, French, German, Spanish
Cost: Free in small quantities; US\$85 per 1000 stickers.
Description: A sticker for vaccine packages giving a warning about proper handling. Accepted by IATA for air transport.

Sticker: EPI LOGO
Languages: No text.
Cost: Free in small quantities; US\$65 per 1000 stickers.
Description: Blue and white sticker with EPI logo on it.



ANNEX 1

AHRTAG "HOW TO" BOOKS

Title: How to look after a refrigerator
Author: Jonathan Elford
Languages: English, Spanish, Turkish
Date printed: 1980
Length: 58 pages
Price: See below

This book gives step-by-step instructions for the care and maintenance of kerosene, gas and electric refrigerators.

Title: How to Look after a Health Centre Store
Author: Anthony Battersby
Languages: English
Date printed: 1983
Length: 72 pages
Price: See below

This book includes all aspects of storekeeping, including how to order supplies and how to look after and dispense them.

Title: How to Choose and Make a Cold Box
Authors: Developed by Anthony Battersby, from original material prepared by Paul Jansdaal
Languages: English
Date printed: 1983
Length: 78 pages
Price: See below

This manual contains clearly presented text and illustrations to help programme managers, technicians and others working in immunization programmes to choose and make the most appropriate cold boxes for vaccine transport in their area.

These three books have been prepared by AHRTAG (Appropriate Health Resources and Technologies Action Group, UK). For details of price and postage, write to:

Teaching Aids at Low Cost (TALC),
P O Box 49
St Albans
Herts AL1 4AX
United Kingdom

ANNEX 2
COMPLETE LIST OF EPI/CCIS DOCUMENTS BY YEAR OF ISSUE

DOCUMENT REF: EPI/CCIS/	LANGUAGE	DOCUMENT TITLE	REPLACED BY: EPI/CCIS/	REPLACES & UPDATES:
87.1	E, F	An annotated cold chain bibliography, 9th Edition, March 1987	-	85.5, 84.2, 83.5, 82.10, 82.5, 81.9, 81.2, 80.2
86.1	E, F	Development of fibreglass wicks for vaccine refrigerators	-	-
86.2	E, F	Development of better kerosene refrigerators for storing vaccines	-	-
86.3	E, F	A guide to estimating capacity of equipment required for storage transporting EPI vaccines	-	80.10
86.4	E, F	Vehicle requirements for the EPI	-	-
85.1/Rev.3	E, F	Vaccine cold chain monitor	-	84.6, 83.3, 81.8
85.2	E, F	Protocol for a cold chain review using vaccine cold chain monitor	-	-
85.3/Rev.1	E, F	Comparison between Sibir and Electrolux gas or kerosene refrigerators	86.2	-
85.4/Rev.1	E, F	Solar powered refrigerators for vaccine storage and icepack freezing	87.1	83.4, 83.2, 82.11, 82.8, 82.3, 81.5
85.5/Rev.1	E, F	An annotated cold chain bibliography	-	84.2, 83.5, 82.10, 82.5, 81.9, 81.2, 80.2
85.6	E, F	EPI syringe and sterilizer study, November 1985	-	83.7, 82.7
84.1	E, F	A Guide to the Selection of Suitable Refrigerator for Vaccine Storage	-	81.6, 79.5
84.2/Rev.1	E, F	An Annotated Cold Chain Bibliography, Seventh Revision, July 1984	85.5	83.5, 82.10, 82.5, 81.9, 81.2, 80.2
84.3	E, F	The Cold Chain Status, June 1984	-	83.1, 82.2, 81.1, 80.4, CC/79.1
84.4	E, F	Status of Cold Box Testing & Buyers' Guide, December 1984	-	81.3, 79.1
84.5	E, F	Vaccine Cold Rooms and Emergency Generators: Buyer's Guide	***	-
84.6	E, F	New Cold Chain Monitor Introduced 1 January 1985 (Announcement Sheet)	85.1	83.3, 81.8
84.7	E, F	Measles Vaccine Indicator Study	-	-
83.1	E, F	Improving the Cold Chain, Progress Report 7: January - December 1982	84.3	82.2, 81.1, 80.4, CC/79.1
83.2/Rev.1	E, F	Solar Powered (Photovoltaic) Refrigerators: May 1983	85.6	82.11, 82.3
83.3	E, F	Vaccine Cold Chain Monitor	85.1, 84.6	81.8
83.4	E, F	United States Photovoltaic Refrigerator Trials: May 1983	85.4	82.8, 82.3,
83.5	E, F	An Annotated Cold Chain Bibliography, Sixth Revision, July 1983	84.2	82.10, 82.5, 81.9, 81.2, 80.2
83.6	E, F	Third Summary Report on Testing Voltage Stabilizers	-	81.13, 80.3
83.7	E, F	Status of EPI Syringe and Sterilization Development	85.6	82.7
83.8/Rev.1	E, F	Chemical Indicators for Monitoring the Cold Chain	-	81.10, 81.11
83.9	E, F	Ice Lined Refrigerator (ILR)	-	79.3
83.10	E, F	Health Centre Refrigerator RCN 42	86.2	-
82.1	E, F	User Handbooks for the EPI Cold Chain	**	-
82.2	E, F	Improving the Cold Chain, Progress Report VI: January to December 1981	83.1	81.1, 80.4, CC/79.1
82.3	E, F	1982/83 Field Trials on Solar Powered Refrigerators	83.2/Rev.1	-
82.4	E, F	Technician's Handbook for Compression Refrigerators (Supplement)	**	-
82.5	E, F	An Annotated Cold Chain Bibliography, Fourth Revision, March 1982	82.10	81.9, 81.2, 80.2
82.6	E, F	Repair Technician's Handbook for Compression Refrigerators (Summary)	-	-
82.7	E, F	EPI Syringe and Sterilization Development: Project Status, May 1982	83.7	-
82.8	E, F	United States Photovoltaic Refrigerator Trial: April 1982	83.4	-
82.9/Rev.1	E, F	Organizing a Course on Refrigerator Repairs	-	81.12
82.10	E, F	An Annotated Cold Chain Bibliography, Fifth Revision, September 1982	83.5	82.5, 81.9, 81.2, 80.2
82.11	E, F	Solar Powered (Photovoltaic) Refrigerators: September 1982	83.2/Rev.1	-

* Out of stock.
** Incorporated in modules for PHC/Logistics course.
*** Incorporated in Product Information Sheets, WHO/UNICEF/EPI, TS/86.1.

Annex 2, List of CCIS documents (continued)

DOCUMENT REF:	LANGUAGE	DOCUMENT TITLE	REPLACED BY:	REPLACES & UPDATES:
<u>EPI/CCIS/</u>				
*81.1	E, F	Improving the Cold Chain - Progress Report V	82.2	80.4, CC/79.1
*81.2	E, F	An Annotated Cold Chain Bibliography, Second Revision	81.9	80.2
*81.3	E, F, P	Summary of Vaccine Hand Carrier and Cold Box Testing, December 1980	84.4	79.1
81.4/Rev.2	E, F, P	Guidelines on the International Shipping & Packaging of Vaccines	-	80.12
*81.5	E, F	Solar Refrigerators for Vaccine Storage and Ice-making	85.4	-
*81.6/Rev.1	E, F, P	Vaccine Refrigerators and Freezers: May 1981	84.1	79.5
*81.7	E, F	Summary of the Product Information Sheets, May 1981	-	-
*81.8	E, F	Vaccine Cold Chain Monitor	83.3	-
*81.9	E, F	An Annotated Cold Chain Bibliography, Third Revision	82.5	81.2, 80.2
*81.10	E, F	Chemical Indicators for Monitoring the Cold Chain	83.8	-
*81.11	E, F	Freeze-watch Indicator	83.8	-
*81.12	E, F	Organizing and Running a Course on Compression Refrigerators	82.9	-
*81.13	E, F	Second Summary Report on Testing Voltage Stabilizers	83.6	80.3
81.14	E, F	Summary Report: UNICEF Cold Chain Survey 1981	-	-
*80.1	E, F	Logistics and Cold Chain - A Workshop for EPI Trainers	**	-
*80.2/Rev.1	E, F	An Annotated Cold Chain Bibliography, First Revision	81.2	-
*80.3	E, F	Report on Testing Voltage Regulators for Vaccine Refrig. and Freezers	81.13	-
*80.4	E, F	Improving the Cold Chain, Progress Report IV, January - December 1979	81.1	CC/79.1
*80.5	E, F	The Cold Chain: A District Level Case Study	-	-
80.6	E, F	Summary of Test Report on Three Brands of Reusable Syringes	-	-
80.7	E, F	Testing Thermometers for Vaccine Storage Monitoring	-	-
80.8	E, F	Summary Report on Testing Icepacks	-	-
*80.9	E, F	Summary of Tests on Alternative Chimneys for Kerosene Burners	86.3	-
*80.10/Rev.1	E, F	A Guide to Estimating Storage Capacities for EPI Vaccines	**	-
*80.11	E, F	Summary of the Product Information Sheets, revised January 1980	81.4	-
*80.12	E, F	WHO Guidelines on the International Shipment and Packaging of Vaccines	**	-
*80.13	E, F	Organizing and Running a Logistics and Cold Chain Workshop	-	-
80.14	E, F	Summary Report on Jet Injector Testing	-	-
80.15/Rev.2	E, F	Guidelines for Establishing National and Regional Vaccine Stores	-	-
*80.16	E, F	Interim Report on the Quality of Kerosene for Vaccine Refrigerators	-	-
*79.1	E, F	Summary of Vaccine Cold Box and Hand Carrier Testing	81.3	-
*79.2	E, F	Summary of Test Results on Portable Refrigerators: APM, France	-	-
*79.3	E, F	New Product: Ice Lining Refrigerator for Vaccine Storage	83.9	-
79.4	E, F	Technical Report on an Alarm System to be Used with Vaccine	-	-
		Thermometer Recorders and Thermometers	-	-
*79.5	E, F	Summary of Vaccine Refrigerator Testing	81.6/Rev. 1	-
*EPI/CC/79.1	E	Improving the Cold Chain III - Progress Report, March 1979	80.4	-

* Out of stock.

** Incorporated in modules for PHC/Logistics course.

ANNEX 3

COMPLETE LIST OF EPI/CCTS DOCUMENTS BY YEAR OF ISSUE^{1/}

1979

EPI/01.79/CC* E Converting domestic chest freezers to icelining refrigerators for storage of bulk vaccine
(Originally issued as EPI/CC/CA/Z9957)

1980

EPI/01.80/CC* E Update report on the quality of kerosene for vaccine refrigerators in developing countries
(Originally issued as EPI/CC/KEROSENE)

EPI/02.80/CC* E Summary report on the development and performance testing of a prototype portable icemaker and kerosene sleeve burner
(Originally issued as EPI/CC/CII)

EPI/03.80/CC E A method of calculating the cold life of an insulated container consisting of water ice as coolant and liquid vaccine as content
(Originally issued as EPI/CC/BOX)

EPI/04.80/CC E Standard test procedure for cold boxes & vaccine carriers
(Originally issued as EPI/CC/EQUIP)

1981

EPI/02.81/CC* E Text analysis

EPI/04.81/CC Rev.3 E Instructions for sending cold chain equipment for testing to Consumers Association/Harpenden Rise Laboratories, UK

EPI/05.81/CC E Standard test protocol for vaccine packaging

EPI/07.81/CC* E Standard test procedure for automatic voltage control units
(Replaced by EPI/02.86/CC)

EPI/08.81/CC Rev.3 E Specification for a one-dose BCG syringe

EPI/10.81/CC Rev.1 E Outline specification for testing the performance of 1 ml syringes for subcutaneous and intramuscular injection

EPI/11.81/CC* E Vaccine cold chain monitor: Instructions for vac. suppliers

EPI/12.81/CC Rev.1 E Test protocol for solar refrigerators

EPI/14.81/CC Rev.1* E Information sheet for compression type vaccine refrig. and freezers

EPI/15.81/CC* E Countries implementing EPI which together have more than 90% of the world's newborns

EPI/16.81/CC Rev.1 E Specification for a 1-dose 1 ml sterilizable syringe

1982

EPI/01.82/CC E Specification for solar absorption (thermodynamic) refrigerators

EPI/02.82/CC Rev.1 E,F Instructions for sending cold chain equipment for testing by PAHO/WHO Test Facility, UNIVALLE, Cali, Colombia

EPI/03.82/CC E Universal spare parts (by P. Dalsgaard)

EPI/05.82/CC* E Discussion paper for cold chain kit for refugee areas

EPI/07.82/CC E Standard test protocol for refrigerators and freezers for use in the cold chain

EPI/08.82/CC* E PATHmark measles potency indicator: protocol for a field trial in 8 EPI countries

EPI/10.82/CC Rev.1 E Test protocol for instrument sterilizers

EPI/11.82/CC Rev.1 E Specification for portable steam sterilizers

^{1/} Note: Documents with discontinued coding have been reclassified to fall within EPI/.../CC series above, as follows:

EPI/CC/CA/Z9957 See EPI/01.79/CC1980
EPI/CC/KEROSENE See EPI/01.80/CC
EPI/CC/CII See EPI/02.80/CC
EPI/CC/BOX See EPI/03.80/CC
EPI/CC/EQUIP See EPI/04.80/CC

* Document archived.

EPI/12.82/CC Rev.1	E	Questionnaire for manufacturers of solar refrigerators for vaccine storage and icemaking
EPI/13.82/CC*	E	Test protocol for 0.1 ml 1-dose BCG syringes (Replaced by EPI/02.83/CC)
EPI/14.82/CC	E	Report on the freezing of vaccine in cold boxes and a -4°C indicator for icepacks
EPI/15.82/CC Rev.7	E	Repair technicians toolkit (compression refrig.)
EPI/16.82/CC	E	Specification for photovoltaic refrigerator
EPI/17.82/CC*	E,F	EPI cold room evaluation proforma

1983

EPI/01.83/CC Rev.2	E	Monitoring instruments for solar refrigerators
EPI/02.83/CC	E	Test protocol of sterilizable plastic syringes
EPI/03.83/CC	E	Standard test protocol for microbiological testing of instrument sterilizers
EPI/04.83/CC	E	Outline protocol for a country study: EPI syringe and sterilization trials
EPI/05.83/CC	E	Outline protocol for a solar (photovoltaic) refrigerator study in a country
EPI/06.83/CC	E	Results of microbiological testing of instrument sterilisers for WHO/EPI

1984

No CCTS documents issued.

1985

EPI/01.85/CC	E	Performance specifications for thermometers and recorders
EPI/02.85/CC	E	Guidelines on choosing immunization equipment
EPI/03.85/CC	E	Guidelines for supply of photovoltaic solar powered refrigerator/freezer for use in EPI
EPI/04.85/CC	E	Standard test protocol for icepack freezers used in the cold chain
EPI/05.85/CC	E	Performance specification for eutectic system for storage and transport of vaccine
EPI/06.85/CC	E	Standard test protocol for chest freezers used to store vaccine and frozen icepacks
EPI/07.85/CC	E	Test procedure for passive container cold rooms used to store vaccines at +4°C and -20°C.
EPI/08.85/CC	E	Universal spare parts for vaccine refrigerator (Original title: Before unpacking, read this book)
EPI/09.85/CC	E	Care and maintenance of cold chain equipment

1986

EPI/01.86/CC	E	Cold chain game and answer sheets
EPI/02.86/CC	E	Standard test procedure for automatic voltage control units
EPI/03.86/CC	E	Outline protocol for field study of a solar (PV) refrigerator
EPI/04.86/CC	E	Test protocol: Thermometers and temperature recorders for the EPI
EPI/05.86/CC	E	Performance specifications for a single use vaccine injection device
EPI/06.86/CC	E	Standard test protocol: Needles
EPI/07.86/CC	E	Standard performance specifications for thermometers and recorders
EPI/08.86/CC	E	Equipment testing laboratories & inspection agencies

* Document archived.

ANNEX 4

EPI COLD CHAIN ORDER FORM

To be sent to: _____ Request dated: _____
 Allotment to charge: _____ Request reference: _____
 Order sent: Complete / Incomplete / _____ Date sent: _____ Initials despatch clerk: _____

I. COLD CHAIN TRAINING COURSE MATERIALS			Language	Ordered No.	Sent No.
Module	Colour	Title			
		<u>LOGISTICS & COLD CHAIN FOR PHC: Complete set (1-27).</u>	E F		
1.	White	How to estimate requirements for existing store.....	E F		
2.	Beige	How to store supplies.....	E F		
3.	Khaki	How to distribute supplies.....	E F		
4.	Gold	How to keep records and calculate wastage.....	E F		
5.	Brown	How to control quality of stocks.....	E F		
6.	Yellow	How to estimate requirements for first time.....	E F		
7.	Green	How to estimate chloroquine requirements.....	E F		
8.	Green	How to estimate ORS packet requirements.....	E F		
9.	Turqu.	How to estimate vaccine requirements.....	E F		
10.	Blue	How to estimate contraceptive requirements.....	E F		
11.	Beige	How to estimate essential drug requirements.....	E F		
12.	Purple	The cold chain game.....	E F		
13.	Orange	How to improve communication.....	E F		
13.1	White	Annex to "How to improve communication".....	E F		
14.	Green	*How to look after a compression refrigerator.....	E F		
15.	Green	*Users handbook for compression refrigerators.....	E F		
16.	Yellow	*How to look after a kerosene refrigerator.....	E F		
17.	Yellow	*Users handbook for kerosene refrigerators.....	E F		
18.	Orange	*How to look after a gas refrigerator.....	E F		
19.	Orange	*Users handbook for gas refrigerators.....	E F		
20.	Grey	How to keep stocks of spare parts.....	E F		
21.	Red	*How to look after a cold store.....	E F		
22.	Red	*Users handbook for cold stores.....	E F		
23.	Pink	Instructors guide.....	E F		
24.	Purple	Evaluation questionnaire.....	E F		
25.	-	*How to look after a solar powered refrigerator.....	E F		
26.	Blue	*User's handbook for solar powered refrigerators.....	E F		
27.	Mauve	How to use the vaccine cold chain monitor.....	E F		
		<u>USER'S HANDBOOK SERIES: Complete set</u>	E F		
*		Individual modules indicated with asterisk above			
		<u>REPAIR TECHNICIANS COURSE: Complete set (A-H)</u>	E F		
A.	Blue	Servicing and repair	E F		
B.	Pink/Mauve	Faults and fault finding	E F		
C.	Purple	Repair work	E F		
D.	Grey	Keep stocks of spare parts	E F		
E.	Yellow	Task sheets and progress tests	E F		
E/Add.1		Task sheets on solar refrigerators	E F		
F.	White	Instructors handbook	E F		
G.	Red	Spare parts lists	(EF)		
		Loose leaf folder	(EF)		
H.	Green	Fault finding & repair of solar powered refrig.....	E F		
		<u>MID-LEVEL MANAGEMENT COURSE (CC module)</u>			
		Manage the Cold Chain	E F		
II. MISCELLANEOUS ACCESSORIES, INDICATORS, THERMOMETERS (available in limited quantities only)			Language	Ordered No.	Sent No.
Indicator, DT/TT.....		-	(EFAS)		
Indicator, Freezwatch.....		E6/14	-		
Indicator, LTM for Icepacks.....		E6/13	-		
Monitor, Cold Chain Vaccine Monitor Cards.....		E6/16	A E F P R S		
RUSH tape, Multilingual.....		E7/10	-		
Surface levels.....		E7/8	-		
Thermometer, Waterproof Liquid Crystal, Model 2100		E6/11	(EFAS)		
Other: _____					

III. AUDIO VISUAL MATERIALS		Language (EFS)	No. Ordered	No. Sent
POSTERS:				
Has your DPT or TT vaccine been frozen?.....	Code CCPS/2....	E F P		
Look after your vaccines.....	CCPS/3....	E F P		
Look after your cold chain equipment.....	CCPS/4....	E		
Look after your vaccines every day.....	CCPS/5....	E		
Look after your vaccines every week.....	CCPS/6....	E		
Look after your vaccines every month.....	CCPS/7....	E F		
Love your refrigerator.....	CCPS/8....	E F		
Only use sharp, straight needles.....	CCPS/9....	E F		
Rinse, clean, then sterilize (boiling method).....	CCPS/10....	E F		
Vaccine vials. Finish or destroy open vials.....	CCPS/11....	E F P S A		
This refrigerator protects lives.....	CCPS/12....	E F		
One syringe, one needle for each injection	CCPS/13....	E F		
Rinse, clean, then sterilize (pressure method).....	CCPS/14....	E		
SLIDE SETS:				
The cold chain (Combined set of 48 slides)		E		
Looking after your vaccine (Set of 24 slides)		F		
Looking after your cold chain equipment (Set of 24 slides)		F		
STICKERS:				
Defrost when ice builds up.....		E F P S		
STOP. Do you need to open it.....		E F S C A		
Vaccine. Rush.....		E F S G A		
EPI Logo.....		-		
FILMS AND VIDEOS:				
How vaccines are made (30 min).....	CCF/1..CCV/1...	E		
The cold chain/How vacc. should be handled (30 min).....	CCF/2..CCV/2...	E F		
The cold chain (cartoon, 6 min).....	CCF/3..CCV/3....	E F S*P*A		
		* Not available as video.		
IV. DOCUMENTS/PRINTED ARTICLES				
	Reference			
EPI Bibliography, January 1987.....	EPI/CCIS/87.1.....	E F		
Vehicle requirements for the EPI.....	EPI/CCIS/86.4.....	E F		
A guide to estimating capacity of equipment.....	EPI/CCIS/86.3.....	E F		
Development of better kerosene refrigerators.....	EPI/CCIS/86.2.....	E F		
Development of fibreglass wicks	EPI/CCIS/86.1.....	E F		
EPI Syringe and Sterilizer Study	EPI/CCIS/85.6.....	E F		
Solar powered refrigerators	EPI/CCIS/85.4/Rev.1.	E F		
Protocol for CC Review Using Monitors	EPI/CCIS/85.2.....	E F		
Vaccine Cold Chain Monitor	EPI/CCIS/85.1/Rev.3.	E F		
Measles Vaccine Indicator Study	EPI/CCIS/84.7.....	E F		
Cold Box Testing/Buyers Guide: June 1984.....	EPI/CCIS/84.4.....	E F		
Ice Lined Refrigerator.....	EPI/CCIS/83.9.....	E F		
Chemical Indicators.....	EPI/CCIS/83.8/Rev.1.	E F		
Testing Voltage Stabilizers.....	EPI/CCIS/83.6.....	E F		
Organising a Course on Refrig. Repairs.....	EPI/CCIS/82.9/Rev.1.	E F		
International Packaging & Shipping.....	EPI/CCIS/81.4/Rev.2.	E F		
Guidelines for Establishing Vac. Stores.....	EPI/CCIS/80.15/Rev.2	E F		
Summary Report on Jet Injector Testing.....	EPI/CCIS/80.14.....	E F		
Summary Report on Testing Icepacks.....	EPI/CCIS/80.8.....	E F		
Testing Thermometers for Vaccine Storage.....	EPI/CCIS/80.7.....	E F		
Test Report on 3 Brands of Reusable Syringes..	EPI/CCIS/80.6.....	E F		
Report on Alarm System.....	EPI/CCIS/79.4.....	E F		
WHO/UNICEF SERIES, PUBLICATIONS & PRINTED ARTICLES:				
Product Information Sheets 1986/87.....	WHO/UNICEF/EPI.TS/86.1..	E F S		
Choice of Injection Equipment	WHO/UNICEF/EPI.TS/86.2..	E F S		
EPI Training Information Sheets	WHO/UNICEF/EPI.TS/86.4..	E F		
How to convert refrig. from kerosene to gas... No reference.....		E		
Choice of syringes for the EPI	WHO/WER'86.....	(EF)		
Fibreglass wicks	WHO/WER'86.....	(EF)		
Icelined refrigerators	WHO/WER'84.....	(EF)		
How much does cold chain equipment cost?.....	WHO/WER'83.....	(EF)		
Freezing icepacks	WHO/WER'83.....	(EF)		
How to choose and make a cold box.....	AHRTAG book.....	E		
How to look after a refrigerator.....	AHRTAG book.....	E		
Immunization: A key to primary health care....	Directions.....	E		
Solar Refrig. for Vacc. Storage & Icemaking... ASSET.....		E		
Storage of Vaccines.....	Post Grad. Doctor...	E		
Strengthening the vaccine cold chain.....	World Health Forum...	E		

() Languages listed between brackets indicate bilingual document.