

# VACCINE VIAL MONITOR

## Training Guidelines

For a detailed list of contents, see **Contents page**

To navigate using bookmarks, click on "display  
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**EXPANDED PROGRAMME ON IMMUNIZATION**  
**GLOBAL PROGRAMME FOR VACCINES AND IMMUNIZATION**



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**Copies may be requested from:**

World Health Organization  
Global Programme for Vaccines and Immunization  
Expanded Programme on Immunization -- Cold Chain  
CH-1211 Geneva 27, Switzerland

*Telephone: +22 791 4373/4421 • Fax: +22 791 4193/4192 • E-mail: gpv@who.ch*

**GPV Catalogue available on the Internet at:**

<http://www.who.ch/programmes/gpv/gEnglish/avail/gpvcatalog/catlog1.htm>

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# CONTENTS

<b>NOTE TO TRAINERS .....</b>	<b>4</b>
1. About the vaccine vial monitor .....	4
2. About the lesson .....	4
<b>LESSON PLAN .....</b>	<b>6</b>
Part 1. Introduction to vaccine vial monitors .....	6
Part 2. How to read and interpret the vaccine vial monitor .....	7

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# NOTE TO TRAINERS

## 1. About the vaccine vial monitor (VVM)

There are two main benefits of using vaccine vial monitors:

- Vaccine vial monitors reduce wastage of good vaccine.
- Vaccine vial monitors ensure that only good vaccine is used on our children.

Health workers can see at a glance whether the vaccine has been protected from heat sufficiently to be used. Previously, there was no way to see if vaccine had been exposed to too much heat. Consequently, vaccine which could no longer provide protection against disease was sometimes used while, in other cases, good vaccine was thrown away following minor cold chain failures.

Storekeepers and vaccinators can determine which vials of usable vaccine have been exposed to more heat than others. Vials with monitors which show more heat exposure should be used before vials with less heat exposure. In this way, health workers and storekeepers can minimize the number of vials which have to be rejected. This will also decrease the wastage of vaccine.

## 2. About the lesson

**Aim:** To train vaccinators and other immunization programme staff to read and interpret the vaccine vial monitor.

**Time:** The lesson will take about one hour.

**Number of trainees:** No more than 10-15 trainees should be trained at one time. If there are more, it will be difficult for you to give them the attention and supervision they need when learning to read and interpret the vaccine vial monitor.

### **Advance preparation:**

- Carefully study the vaccine vial monitor Question and Answer Sheet (WHO/EPI/LHIS/96.01) in order to become expert on the topic.
- Know the policies regarding the use of vaccine with vaccine vial monitors in your country.
- Prepare the lesson, collect the materials and prepare the vaccine vial monitors as explained below.

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**Materials required:**

For each training course you will need:

- One copy of the VVM question and answer sheet for each trainee (WHO/EPI/LHIS/96.01)
- One copy of the VVM mini poster for each trainee (CCPS/20)
- Empty polio vaccine vials for demonstration purposes and for the practice session in Part 2 (see below).

**Preparation of the vaccine vial monitors:**

- Calculate the number of vials needed:  
For demonstration purposes (demo);  
6-8 For the Part 2 practice session, 4 per group of 3-5 people.

<b>Number of VVMs</b>	<b>State of exposure of the VVM</b>
2 for demo., 1 per group	<b>With no heat exposure:</b> Fresh VVMs, inner square of colour lighter than the circle.
2 for demo., 1 per group	<b>With some heat exposure:</b> VVM beginning to change colour -- inner square of colour still lighter than the circle. (Get different levels of exposure in this range to show variations in the colour of the square while it remains lighter than the circle.)
2 for demo., 1 per group	<b>With excessive heat exposure:</b> VVM changed colour almost completely -- inner square of colour the same as the circle.
2 for demo., 1 per group	<b>With excessive heat exposure:</b> VVM changed colour completely -- inner square darker than the circle.

- Leave the vials out of the refrigerator until their vaccine vial monitors change to the colour required.
- Put the vials back into the refrigerator to avoid further colour change.
- **Make sure that the empty training vials are stored separately from any vaccine that may be used for immunizations.**

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# LESSON PLAN

## **Part 1: Introduction to vaccine vial monitors (VVMs)**

**Objective:** To explain why WHO/EPI now recommends that all oral polio vaccines be labelled with vaccine vial monitors and how the monitors work.

**Time required:** Approximately 10 minutes

Greet the trainees and present the following points:

- **What is a vaccine vial monitor?**

“Today we are going to introduce a new technical development designed to help us better manage our vaccines and to feel more confident that they have not been spoiled due to exposure to too much heat. The device is called a ‘vaccine vial monitor’. It is a small circle of colour, printed on the label of polio vaccine vials.”

*Show trainees sample of polio vials with vaccine vial monitors attached*

“The vaccine vial monitor changes colour as it is exposed to heat.

“After the vaccine leaves the factory, and as long as it is kept cool, the colour of the monitor changes very slowly.

“As the vial is exposed to more heat, the monitor changes colour more rapidly. After a sufficient amount of heat exposure has occurred, the colour of the monitor will signal that the vaccine in the vial has been exposed to too much heat and is no longer usable. In this case, the vial should be discarded.”

- **Why is it important to use vaccine vial monitors (VVMs)?**

“It is important to use vaccine vial monitors because they help health workers determine whether vaccines have been spoilt by exposure to too much heat. By rejecting vaccine vials which are at risk of being impotent, we can guarantee that every immunization provides good protection against disease.

The World Health Organization (WHO), UNICEF and the United States Agency for International Development (USAID) have supported research aimed at perfecting the design of this monitor for several years. As from January 1996, UNICEF will supply all polio vaccine vials with vaccine vial monitors - or ‘VVMs’ as they are called.”

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## **Part 2: How to read and interpret the vaccine vial monitor**

**Objective:** To teach trainees how to use the vaccine vial monitor

**Time required:** Theory: approximately: 15 minutes

Practice session: 30 minutes

### ***Theory***

*Give each trainee a copy of the VVM poster (CCPS/20) and Question and Answer Sheet (WHO/EPI/LHIS/96.01)*

“Let’s go over the poster and the question and answer sheet together. Later, we will have a chance to examine actual vaccine vial monitors on the vaccine vials and practice reading them.”

*Review the poster and each page of the question and answer sheet as a group.*

*Be sure to give specific guidelines on how to record discarded vaccine (if this is required by country policy) and how to inform the supervisor about this.*

*After reviewing the material, ask the trainees if they have any questions about the vaccine vial monitor and answer them.*

### ***Practice session***

*Divide the trainees into groups of 3-5 people. Give each group four vials with vaccine vial monitors with different levels of exposure, as described above under paragraph 1.3.*

*Allow the groups 5-10 minutes to make their decisions. If there is disagreement within the group, help them to decide. If they make an incorrect decision, point it out to them.*

“Fine. Did any of you have trouble in determining which vials could be used? Did you check the vaccine expiry date? How did you finally decide? Any questions?”

*Lead the discussion and answer questions.*

“Now please look only at those vaccines which can still be used. Half have been exposed to more heat than the other half. The vials which have had more heat exposure should be used first. Please separate the vials which should be used first from the other vials.”

*Allow the groups 5-10 minutes to make their decisions. If there is disagreement within the group, help them to decide. If they make an incorrect decision, point it out to them.*

“Fine. Did any of you have trouble in determining which vials could be used first? How did you finally decide? Any questions?”

*Lead the discussion and answer questions.*

“When you return to your work place, please teach your friends and colleagues who handle vaccines how to use the vaccine vial monitors.”