

Training Manual

Reporting and Recording Documentation for Monitoring of Work on Immunization

Level 2: Rayon Centers of Public Health and Polyclinics

Fourth Edition, October 2004

Prepared by:

Ministry of Labor, Health and
Social Affairs of Georgia

National Center for Disease
Control

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by:*

Partners for Health Reform*plus*
Curatio International Foundation



Ministry of Labor, Health
and Social Affairs
National Center for Disease
Control and Medical Statistics



Curatio
International
Foundation



Partners for Health Reform*plus*



Abt Associates Inc. ■ 4800 Montgomery Lane, Suite 600
Bethesda, Maryland 20814 ■ Tel: 301/913-0500 ■ Fax: 301/652-3916

In collaboration with:

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- ▲ *Implementation of appropriate health system reform.*
- ▲ *Generation of new financing for health care, as well as more effective use of existing funds.*
- ▲ *Design and implementation of health information systems for disease surveillance.*
- ▲ *Delivery of quality services by health workers.*
- ▲ *Availability and appropriate use of health commodities.*

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and: Karen Cavanaugh, CTO
Health Systems Division
Office of Health, Infectious Disease and Nutrition
Center for Population, Health and Nutrition
Bureau for Global Programs, Field Support and Research
United States Agency for International Development

Abstract

The fourth edition of the training manual for rayon centers of public health and polyclinic-ambulatory units (PAUs) is a comprehensive compendium of the Georgia immunization program documentation: updated (2004) recordkeeping and reporting requirements of the Ministry of Labor, Health and Social Affairs (MoLHSA) and the National Center for Disease Control; current guidelines for immunization data analysis and utilization; and materials for monitoring and evaluating the immunization system and provider performance. The MoLHSA has developed these guidelines for nationwide implementation. They are approved by MoLHSA Decree # 122/n.

The manual is designed primarily for health personnel working at the rayon level who are responsible for the implementation of the immunization program. The section on evaluation of the work at rayon public health centers and PAUs can guide both the rayon-level facilities in doing self-evaluations and regional centers for public health in monitoring and supervising rayon-level work.

The worksheets for monitoring immunization work that are contained in this manual are illustrative. A full set of worksheets has been published separately in an immunization workbook for centers of public health and PAUs.

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Acronyms

BCG	Bacillus, Calmette and Guerin Vaccine
CHP	Children's Polyclinics
CIF	Curatio International Foundation
CPH	Center for Public Health
DoB	Date of Birth
DT	Diphtheria and Tetanus Toxoid combination
DPT	Diphtheria, Pertussis and Tetanus vaccine
FAP	Feldsher & Midwife Station
MIS	Management Information System
MMR	Measles, Mumps and Rubella vaccine
MoLHSA	Ministry of Labor, Health and Social Affairs
NCDC	National Center for Disease Control
PATH	Program for Appropriate Technology in Health
PAU	Polyclinic Ambulatory Unit
PHD	Public Health Department
PHR<i>plus</i>	Partners for Health Reform <i>plus</i> Project
TB	Tuberculosis
Td	Tetanus and Diphtheria Toxoid
USAID	United States Agency for International Development
VDA	Village District Ambulatory

Contributors

This manual has been prepared by the Ministry of Labor, Health and Social Affairs (MoLHSA) expanded working group headed by P. Imnadze, Director of the National Center for Disease Control (NCDC), with technical assistance received from USAID/PHR*plus* and Curatio International Foundation.

The working group also included the following:

<i>Levan Baramidze</i>	Head of the Public Health Department, MoLHSA
<i>Paata Imnadze</i>	Director, NCDC
<i>Levan Baidoshvili</i>	Immunization Program Coordinator, NCDC
<i>Manana Tsintsadze</i>	Deputy Director, NCDC
<i>Marina Shakh-Nazarova</i>	Head, Data Analysis & Presentation Division, NCDC,
<i>Lia Djabidze</i>	Head, Immunization Department, NCDC
<i>Tamar Sulkhanishvili</i>	Immunization Department, NCDC
<i>Khatuna Zakhashvili</i>	Head, Surveillance Unit, NCDC
<i>Nona Beradze</i>	Surveillance Unit, NCDC
<i>Gia Chirakadze</i>	Deputy Head, Public Health Department, MoLHSA
<i>Ketevan Galdavdze</i>	Chief Specialist of Surveillance Division, Public Health Department, MoLHSA
<i>Tamar Dolakidze</i>	Medical Director, Vishnevskaya-Rostropovich Foundation, Georgia
<i>Neli Khizanishvili</i>	Director, Kakheti Regional Public Health Center
<i>Lili Zautashvili</i>	Deputy Director, Kakheti Regional Public Health Center
<i>Merab Sepashvili</i>	Director, Kvareli Rayon Public Health Center
<i>Nunu Nozadze</i>	Director, Lagodekhi Rayon Public Health Center
<i>Marina Okroshidze</i>	Durector, Lagodekhi Rayon Children's Polyclinic
<i>Lela Otarashvili</i>	Director, Sagarejo Rayon Public Health Center
<i>Maia Ilauri</i>	Epidemiologist, Sagarejo Rayon Public Health Center
<i>Niko Aivazashvili</i>	Chief Doctor, Polyclinics-Ambulatory Unit, Telavi
<i>Natela Tsikaradze</i>	Doctor/Statistician, Polyclinics-Ambulatory Unit, Telavi
<i>Ketevan Gelashvili</i>	Deputy Director, Telavi Rayon Public Health Rayon Center
<i>Ketino Rostomashvili</i>	Doctor/Statistician, Children's Polyclinic in Telavi
<i>Tamriko Sisauri</i>	Statistician, Telavi Rayon Public Health Center
<i>Dali Kobuladze</i>	Deputy Director, Imereti Regional Public Health Center
<i>Tamar Maskharashvili</i>	Director, Zestaphoni Rayon Children's Policlinic

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The names of health facilities shown in forms in this publication do not refer to real institutions and are used for illustrative purposes only.

1. Recordkeeping and Reporting Documentation

This chapter explains recordkeeping and reporting documentation and monitoring at the second level of the immunization system in Georgia, i.e., documentation required at the level of rayon/town¹ centers for public health (CPHs) and polyclinic-ambulatory units (PAUs).² Chief specialists responsible for immunization at the aforementioned facilities are expected to participate in this documentation and monitoring. The aim of such recordkeeping and monitoring is to be able to conduct an analysis of reports received from immunization points/health care facilities and make appropriate managerial decisions to correct identified deficiencies.

The reports/forms outlined in this chapter make it possible for chief specialists and health care staff to evaluate the state of immuno-prophylaxis in any particular facility service district as well as in the rayon/town in general. This evaluation will be well founded and evidence based as a result of their using the developed recordkeeping and analytical tables. In addition, this will help produce needed reports for the rayon/regional CPHs.

¹ Towns with rayon divisions are considered.

² In some cases, a PAU is considered to be both a level 1 and a level 2 facility at the same time.

Population by Age Summary Report (2.2)

The Population by Age Summary Report (2.2) is compiled by the epidemiologist at the rayon CPH or PAU together with a person responsible for immunization in the rayon or town. This report is compiled annually in October-November on the basis of the Population by Age Report (1.2) submitted by level 1 health care facilities. The original copy of the report is kept in the rayon CPH/PAU and copies are submitted to the regional or rayon CPH once a year according to the schedule (see schedules listed in Chapter 2).

The age group “under 1” includes children born in the preceding 12 months, i.e., in the final four months (September–December, IX–XII) of the preceding calendar year and the first eight months (January–August, I–VIII) of the current year, for example, from September 2003 through August 2004; “1 year” refers to children born in the previous calendar year (i.e., in 2003); “2 years” refers to children born in the year before the previous calendar year (i.e., 2002), and so on.

Data in this report are used to complete (and later update) the annual Prospective Plan for Immunizations for the Next Year (2.3) for the rayon/town (see next section). The data also can be used to verify the accuracy of annual prospective plans submitted by subordinate facilities.

Form 2.2: Population by Age Summary Report

in _____ rayon, town (facility) _____ (date)

Age groups	Year of birth	Population of the service area (FAP, VDA, uchastok, CHP, PAU):											Total rural	Total urban	TOTAL	
under 1*																
1*																
2*																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																
Total 0-14y 11mo 29d																
15																
16																
17																
18																
19																
Total 15-19y 11mo 29d																
20-29																
30-39																
40-49																
50-59																
60+																
Total 20+																
TOTAL on the territory																

Note: Compiled once a year (in Oct.) on the basis of Population by Age reports submitted by subordinate FAPs, ambulatories, and polyclinics.

* Age group "under 1" comprises children born during the first eight months (I-VIII) of the current year plus children born in the last four months (IX-XII) of the previous year; "1 year" comprises children born in the previous calendar year (i.e. in 2003); "2 years" comprises children born in the year before the previous year (i.e. in 2002); and so on.

Prospective Plan for Immunizations for the Next Year (2.3)

The Prospective Plan for Immunizations for the Next Year (2.3) is done once a year (in October-November) and is updated on the basis of Prospective Plan(s) for Immunizations for the Next Year (1.3) submitted annually (October-November) by the subordinate facilities of the rayon or town.

Data in the Prospective Plan are used to calculate the amount of vaccine needed for both vaccination and revaccination of the population in the rayon's service area, and they provide the basis for monitoring of immunizations in that area.

In the rayon's summary form 2.3, the prospective plan for BCG and hepatitis B-1 vaccines for children under 1 year is based on the number of births in the preceding 12 months, i.e., in the final four months (September–December, IX–XII) of the preceding calendar year and the first eight months (January–August, I–VIII) of the current year. The rayon must make an effort to tally *all* children that need to be vaccinated to the extent possible, i.e., both the number of births at maternity houses and the number of home births. The former should be taken from the monthly statistical form IV-02, Report on Medical Care for Women in Antenatal, Intrapartum, and Postpartum Period.

“BCG under 1” given in a separate row indicates children not immunized at maternity houses.

As noted above, updates to the Prospective Plan for the current year are made on the basis of Population by Age reports (1.2 and 2.2). For example, the plan for administering polio, DPT, and hepatitis B vaccinations to children under 1 year in the coming year (2005) is calculated based on the number of children born in I-VIII months of the current year (2004) and IX-XIII months of the previous year (2003). In October 2005, this plan would be updated based on the number of children actually born in I-VIII months of 2005 and IX-XII months of 2004. For measles, mumps and rubella vaccinations for children at 1 year, the plan is calculated similarly to the abovementioned vaccinations, while in October 2005 it would be adjusted to the number of children actually born during calendar year 2004.

The original Prospective Plan for Immunizations remains at the rayon CPH/PAU and copies are submitted to the rayon and the regional CPH annually according to the schedule.

Form 2.3: Prospective Plan for Immunizations for the Next Year

for _____ rayon, town (facility) _____ (date)

№	Type of immunization	Target (number of children) by health care facility (FAP, VDA, uchastok, CHP, PAU)																			
																					TOTAL
	VACCINATION																				
1	BCG, Hepatitis B-1 under 1 y*																				
	BCG 12-24 m**																				
2	Polio, Pertussis, Diphtheria, Tetanus Hepatitis B -3 under 1y																				
	Polio 1-15 y																				
	DTP 1-4 y																				
	DT 1-6 y																				
	Td over 6 y																				
	Hepatitis B 12-24 m																				
3	Measles, Mumps, Rubella 1 y																				
	Measles, Mumps, Rubella 2-3 y																				
	BOOSTERS																				
1	DTP-4 18-24 m																				
2	DT over 18 m																				
3	Polio-4 18-24 m																				
4	DT, Polio, Measles, Mumps, Rubella (5y-5y 11m 29d)																				
5	Measles, Mumps, Rubella 13 y																				
6	Td 14 y																				

Note: Completed once a year in Oct.-Nov. on the basis of Prospective Plans for Immunizations from the service area.

*Total in the rayon summary form is based on the average number of births during the preceding 12 months (Sept.-Aug.). It is the sum of home births and births at maternity house(s).

** Not immunized at birth

Cold Chain Equipment Inventory Book (2.4)

The Cold Chain Equipment Inventory Book (2.4) section of the workbook contains information about cold chain equipment at all subordinate vaccination points of a rayon or town CPH/PAU. This section is completed annually (at the end of the year) according to the submitted data. The records can be updated during visits to subordinate immunization points and also upon receipt of new cold chain equipment or writing off old equipment.

The inventory book (2.4) is used to monitor the efficacy of the cold chain in the rayon (town) and to plan purchases of new equipment and repairs of the broken equipment.

Record Book for Vaccine, Syringe, and Safety Box Flow (2.6)

The Record Book for Vaccine, Syringe, and Safety Box Flow (2.6) is designed to continuously track the supply, distribution, and remaining stock of vaccines, syringes, and safety boxes. Each material (including each type of vaccine) should have its own page (or multiple pages) in the record book.

Vaccine flow is registered in the record book by recording when a vaccine is received, distributed, or written off. When registering vaccine flow, one has to indicate the amount of vaccine in doses in all columns.

On each new page of the record book, the name of the item – vaccine, syringe, or safety box – should be written in the second row next to “Material: _____.” The lot number and expiration date are entered in the table, as appropriate to the type of item.

In addition to regularly recording the receipt, issue, and usage of the vaccines, syringes, and safety boxes, a health worker responsible for immunobiologicals should calculate the balance of remaining vaccines, syringes, and safety boxes in order to be aware at all times (not only at the end of a month) of the type and quantity of materials that are in stock. A health worker should be responsible not only for tabulating the quantity of vaccines but also for their proper storage and for ensuring that vaccines with the shortest shelf life are issued first.

At the end of every month a health care worker should make an inventory of the vaccines left in the refrigerator (cold room) and check whether their amount corresponds to the balance of vaccines in the record book (2.6). Vaccines that have an expired date, are of bad quality, or are left over must be destroyed/written off according to the existing regulations.

It is important to make sure that a health facility receives, along with new vaccine lots, instructions on the use of those vaccines. It is recommended that health facilities keep such instructions for every type of vaccine.

The “Use of vaccines” section of the Summary Report on Immunization Practice (2.8) is completed on the basis of data from this record book (2.6) and from the monthly Reports on Immunization Practice submitted by subordinate health care facilities.

Cold Storage (Refrigerator) Temperature Registration Record (2.7)

The Cold Storage Temperature Registration Record (2.7) is filled in daily to monitor the temperature in the rayon CPH's storage area for vaccines. If there are several refrigerators, separate temperature registration records should be kept for each one.

It is recommended to routinely set the temperature of the refrigerator (cold room) at +4⁰C. A health worker responsible for vaccines should monitor the temperature in the refrigerator (cold room) where the vaccine is stored and make note of it in the record (2.7) twice a day (at the beginning and end of the work day).

In case of a power failure or breakdown of the refrigerator, a health worker should make appropriate notes in the record (2.7). Note (D) means the refrigerator is turned off for defrosting; note (N) means refrigerator is out of order (not working); Note (P) means refrigerator is turned off because of power deficiency. The worker should take measures to ensure the proper temperature regimen for storage of the available vaccines.

Form 2.7: Cold Storage (Refrigerator) Temperature Registration Record

Facility _____ Responsible person* _____

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Signature
JAN	morning																																
	evening																																
FEB	morning																																
	evening																																
MAR	morning																																
	evening																																
APR	morning																																
	evening																																
MAY	morning																																
	evening																																
JUN	morning																																
	evening																																
JUL	morning																																
	evening																																
AUG	morning																																
	evening																																
SEP	morning																																
	evening																																
OCT	morning																																
	evening																																
NOV	morning																																
	evening																																
DEC	morning																																
	evening																																

D = refrigerator is turned off for defrosting; N = refrigerator is out of order (not working); P = refrigerator turned off because of power deficiency.

*Responsible person must sign the document at the end of each month.

Responsible person _____

Summary Report on Immunization Practice (2.8)

The Summary Report on Immunization Practice (2.8) is the main reporting document prepared by rayon/town CPHs that reflects the immunization situation in a rayon or town. It is completed monthly on the basis of the Report on Immunization Practice (1.8) submitted by subordinate health care facilities, including maternity houses. The PAU prepares report 1.8 (see level 1 manual) on the basis of similar reports on immunization practice (1.8) received from subordinate ambulatories and “uchastocks,” and submits summary report 1.8 to the rayon CPH no later than on the third day of the following month.

Sections “Immunizations given,” “Contradictions to DPT,” and “Refusals” are filled in only on the basis of reports 1.8 that have been submitted by subordinate level 1 health facilities. The recommended forms (see Chapter 3) can be used to facilitate the calculation and the analysis. Columns 5-9 of the “Use of vaccines” section is filled out on the basis of the Record Book for Vaccine, Syringe, and Safety Box Flow (2.6). Columns 10-11 are filled out from columns 7-8 of the monthly reports (1.8) submitted by subordinate health care facilities.

The sum of the *balance at the facilities at the end of the previous month* and the *number of doses issued by the rayon CPH during the current month* should be equal to the sum of the *balance at the facilities at the end of the current month* and *total amount of utilized vaccines*. Data from this section are used to monitor vaccine supplies in the rayon/town and to secure the timely ordering and distribution of vaccines.

This form is a reporting document. The rayon CPH prepares this report monthly and makes three copies: one copy stays at the facility; the other two copies are submitted to the regional CPH no later than on the fifth day of the following month. Forms that report zero immunizations also should be submitted.

Field Statistics Reporting Form

Pursuant to article 177 of the Georgian Administrative Justice Violation Code, failure to submit statistical information on time, falsification of the submission data, or failure to use the established form by facilities will incur a penalty of eight to twelve times the amount of the minimum monthly salary.

Ministry _____
(Name)

Form # 4 (Monthly)

District, rayon, facility _____
(Name, address)

Approved by Georgian
Ministry of Health and
Social Welfare
order #122/n 04.06.2003

Report on preventive vaccinations administered
_____ (month) 20__ (year)

Form 2.8: Report on Immunization Practice

Rayon _____			Period _____				Date _____			
Immunizations Given				USE of Vaccine in Doses						
Vaccine	Age at vaccination	Number of people vaccinated	Total Immunizations Given	Balance at the rayon CPH at the beginning of the period (doses)	Received (doses)	ISSUED (doses)	Destroyed/written off (doses)	Balance at the rayon CPH the end of the period (doses)	BALANCE at health care settings at the end of the period (doses)	TOTAL AMOUNT OF VACCINE USED (doses)
1	2	3	4	5	6	7	8	9=5+6-7-8	10 from column 8 (1.8)	11 from column 9 (1.8)
BCG-v	0-5 days		Total							
	6 days-11mo29d									
	1 year- 1y11mo29d									
Diphtheria-Tetanus-Pertuisis-1	2 months - 11mo29d		Total							
	More than 1 year									
Diphtheria-Tetanus-Pertuisis-2	3 months - 11mo29d									
	More than 1 year									
Diphtheria-Tetanus-Pertuisis-3	4 months - 11mo29d									
	More than 1 year									
Diphtheria-Tetanus-Pertuisis-4	18 - 24 months									
	More than 24 months									
Diphtheria-Tetanus-1	under 1 year		Total							
	More than 1 year									
Diphtheria-Tetanus-2	under 1 year									
	More than 1 year									
Diphtheria-Tetanus-3	under 1 year									
	More than 1 year									
Diphtheria-Tetanus	18 months +									
	5 years- 5 y11mo29d									
Diphtheria-Tetanus	6 years-6 y11mo29d									
	others									
Poliomyelitis -1	2 months - 11mo29d		Total							
	More than 1 year									
Poliomyelitis -2	3 months - 11mo29d									
	More than 1 year									
Poliomyelitis -3	4 months - 11mo29d									
	More than 1 year									
Poliomyelitis -4	18 -24 months									
	More than 24 months									
Poliomyelitis -5	5 years- 5 y11mo29d									
	More than 6 years									
Other OPVs	others									
Viral Hepatitis B-1	0 - 24 hours		Total							
	25 hours - 11mo29d									
	1 year- 1y11mo29d									
Viral Hepatitis B-2	2 months - 11mo29d									
	1 year- 1y11mo29d									
Viral Hepatitis B-3	3 months - 11mo29d									
	1 year- 1y11mo29d									
VHB-1	others									
VHB-2										
VHB-3										
MMR-1	12 -24 months		Total							
	More than 24 months									
MMR-2	5 years- 5 y11mo29d									
	More than 6 years									
MMR	13 years									
	others									
Measles	others									
Mumps										
Rubella										
MR										
Td Tetanus - Diphtheria	more than 6 years		Total							
	14 years									
	others									
REFUSALS TO DPT			CONTRAINDICATIONS TO DTP							
				Short-term	Long-term	Permanent	Total			
DTP (under 1y)			DTP (under 1y)							

2. Submission of the Reporting Documentation

The PAU, children's polyclinics and rayon/regional CPH must submit the reports and other documents listed in the table below. The information is the basis for preparing documentation for state statistical reporting. Copies of each report should be submitted to the regional CPH/rayon CPH according to the territory subordination. Originals should be kept at the rayon CPH or PAU that completes the report.

The Summary Report on Immunization Practice provides a basis for monitoring the entire immunization program and, when necessary, for taking measures to eliminate shortcomings and problems that are revealed.

Report Submission Schedule

Report	Frequency	Due Date	Reporting place
Level I			
Population by Age Summary Report 1.2	Yearly	November 10	PAU, children's polyclinics
Prospective plan for Immunizations for the Next Year 1.3	Yearly	November 10	PAU, children's polyclinics
Report on Immunization Practice 1.8	Monthly	28 th date of current month	PAU, children's polyclinics
		3 rd day of following month	Rayon, city CPH
Levels II, III			
Population by Age Summary Report 2.2	Yearly	November 15	Rayon, city CPH
		November 20	A/R*, regional CPH
		November 30	NCDC
Prospective plan for Immunizations for the Next Year 2.3	Yearly	November 15	Rayon, city CPH
		November 20	A/R, regional CPH
		November 30	NCDC
Summary Report on Immunization Practice 2.8	Monthly	5 th day of following month	A/R, regional CPH
		7 th day of following month	NCDC
Annual need of Vaccines and Syringes	Yearly	December 15	A/R, regional CPH
	Yearly	December 20	NCDC
Order form for Vaccines, Syringes and Safety Boxes	Monthly (quarterly in case of severe climate conditions)		A/R, regional CPH
	Quarterly		NCDC

* A/R = autonomous republic

3. Monitoring System at the Level of Rayon CPH/PAU

Rayon CPHs and PAUs represent the second level of management of immuno-prophylaxis. This is the level where summaries of reports, analyses of the state of immuno-prophylaxis in the rayon/town, and decisions on improving protection of the population of the service area against vaccine preventable diseases are made.

Health officials of the rayon CPH and PAU are personally responsible for the timeliness and quality of the information submitted in the recording and reporting forms. Appropriate analytical worksheets for calculation of indicators and graphical analysis are filled out by CPH and PAU for every subordinate facility. The accuracy of the reported data will be analyzed by checking subordinate health care facilities according to the approved checklist and by an analysis of the results in the recommended worksheets.

Monitoring of immunizations at this level should be based on the following indicators:

1. DPT-3 coverage of children age 1 year (percentage)
2. Percentage of children under 1 year with contraindications to DPT
3. Percentage of DPT refusals in children under 1 year
4. Vaccines usage/wastage indicator (for DPT, polio, measles, hepatitis B)

These indicators should be analyzed on a monthly basis. If appropriate, other quantitative and qualitative indices can be monitored as well.

Monitoring of DTP-3 Coverage of Children Under 1 Year

Monitoring of DTP-3 coverage of children in their first year of life is an important indicator for an immunization program. If the vaccination of children under 1 year is organized properly, the coverage indicator should reach 96-97 percent, because the majority of children will get their DPT-3 immunization according to the immunization schedule before they are 5 months old. An indicator that shows an unacceptably low rate of coverage should alert an immunization program to take prompt corrective measures.

Analysis of this indicator is made on the basis of monthly reports on immunization practice submitted by health care facilities. The proposed recording, analytical, and monitoring worksheets illustrate the difference in indicators by individual facilities and compare with the estimated and actual average figures for the rayon.

For children between 5 and 12 months of age, the health worker responsible for child immunizations at a PAU can revise the number and justification of contraindications, which resulted in the extension of intervals between DPT-1, -2, and -3 vaccinations. In this way, this person can influence the coverage of children under 1 year. If a child has not received required vaccinations by the age of 1 year, the Regional Doctors' Expert Group/Commission should analyze the situation and make recommendations about how to bring the child into full immunization compliance. If the immunization procedures are correctly implemented, the number of unvaccinated children under 1 year will be small.

The monitoring sheet on DPT-3 coverage of children under 1 year envisages 25 percent (cumulative) quarterly coverage. If the DPT-3 coverage does not meet the target line on the form, health facilities should be checked to identify the reason(s) for the low vaccination coverage rate. The following are possible reasons:

1. Failure to reach all children under 1 year of age
2. Unreasonably high rate of contraindications
3. Frequent or prolonged shortages of vaccine(s)
4. High proportion of refusals

The corrective strategy will depend on the reason for the low coverage.

If one or several facilities in a rayon exceed the DPT-3 immunization target line in a quarter (25 percent of the annual target), this should signal the need to check the accuracy of the annual plan for immunization. Such cases may signal an incorrect definition of the target group "Under 1 year" (i.e., reporting plans/targets that do not include *all newborns* living in a given territory) or reflect the difference in the number of children born monthly.

This worksheet, which reflects the quality of organization for immunization practice, can be used at sessions of medical councils, sanitary epidemiological councils, and other meetings for making appropriate decisions. Similar worksheets and sheets on monitoring immunization coverage of the population against other infectious diseases are on the following pages.

The source of data for this and other worksheets are reports submitted by health facilities and polyclinics.

Example of Monitoring Sheet for Immunization Coverage (%) of Children Under 1 Year with DPT-3

Rayon/town (facility) _____ Year _____

4 th quarter	100%																		
	75%																		
	50%																		
	25%																		
1 st quarter	0%																		
Coverage, %																			
4 th quarter																			
3 rd quarter																			
2 nd quarter		40%	50%	30%															40%
1 st quarter		20%	30%	20%															23%
Health facility (name)		VDA No. 1	VDA No. 2	VDA No. 3															TOTAL

Cumulative quarterly coverage (%) is used for building the diagram (see appropriate worksheet).

Monitoring of the Percentage of Children with Contraindications to DPT and Refusals

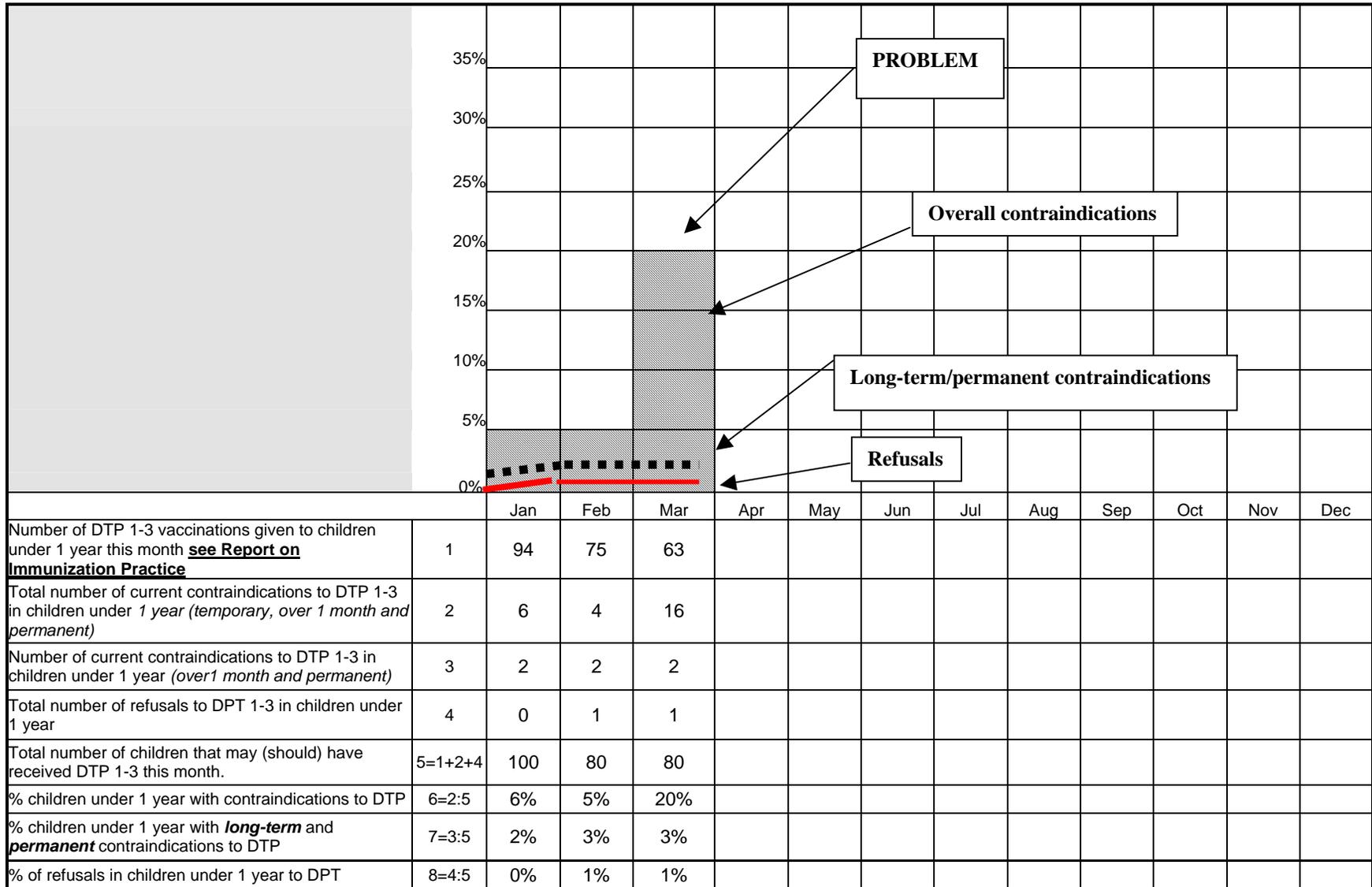
One of the reasons for uncompleted vaccinations of children under 1 year is false contraindications. According to World Health Organization recommendations, the number of children under 1 year with justified long-term and permanent contraindications should not exceed 2 percent.

The percentage of children under 1 year in a rayon or town with contraindications to DPT is calculated monthly on the basis of summary reports on immunization practice (2.8). A similar analysis is performed to monitor the rate of refusals. A graph built monthly can show the tendency for contraindications and refusals to increase or decrease.

If the percentage of contraindications or refusals to vaccination increases in a certain administrative territory, the situation will require urgent organizational decisions – first to determine which facility or facilities are responsible for the unsatisfactory indicator and second to do a similar analysis at the children’s polyclinic level on the basis of the indicators at immunization points.

Example of Monitoring Sheet for Refusals and Contraindications to DPT (%) by Month in _____ (year)

in _____ (health district, health facility)



Note: This record is kept at the level of village ambulatories and polyclinics for monitoring of the work.

Vaccine Usage Indicators

Vaccine usage indicators are important because health facility managers should know the amount of vaccines used per the number of immunizations made at every subordinate health care facility and in rayons or towns in general.

DPT, polio, measles, and hepatitis B vaccine usage indicators have been chosen as markers that can speak about problems related to the immunization of children. When needed, analysis of other vaccine usage could be performed as well. If the usage indicator is too low (≤ 1), either the data are inaccurate due to improper recording of vaccine usage or the children are not being immunized properly. On the other hand, an indicator of vaccine usage that is too high (see table below) may be due to the improper organization of days for immunization, failure to adhere to the temperature storage regimen, or improper recording of vaccine usage. This indicator also allows one to compare the wastage of vaccines of different packing types (vials), which can be used for rational vaccine procurement planning.

	Number of children <1 served by facility				
	0-10	11-60	61-120	121-300	> 300
Recommended number of immunization sessions/month	1*	1	2	3	As needed
Vaccine	Acceptable wastage coefficients				
1 dose/vial: MMR, Measles	N/A	1.05	1.05	1.05	1.05
2 doses/vial: DPT, Measles, Mumps		1.5	1.3	1.1	1.1
6 doses/vial: Hepatitis B		2.0	1.5	1.5	1.3
10 doses/vial: DPT, Polio, Hepatitis B, MMR, DT, Td		3.0	2.0	1.5	1.3/1.5**
10 or 20 doses/vial: BCG		As much as needed			

* via local medical personnel from facility to which ambulatory is subordinated or mobile team

** for DT/Td 10 dose vials, the wastage coefficient would be 1.5. For the other vaccines, it is 1.3

Acceptable wastage coefficients and recommended frequency of immunization sessions for each vaccine presentation are presented below. Wastage that exceeds these numbers points to existence of the above-described problems.

Rayon CPH managers should know how effectively vaccines were used; however, they should be careful when interpreting these data. Higher than average wastage can be justified when doing vaccinations in sparsely populated territories in the absence of mobile teams or when opening large vials to vaccinate children who live in hard-to-reach areas and might remain unvaccinated if the present opportunity is missed. Urgent measures should be taken if the vaccine usage indicator becomes unreasonably high or low.

Example of calculation of the vaccine usage indicator:

	Vaccine used (doses) in the month (a)	DPT 1-4 made in the month (b)	Doses used per one vaccination (a/b)
VDA-1	50	40	1.25
VDA-2	40	33	1.21
VDH	100	80	1.25
TOTAL	190	153	1.24

The major vaccine wastage reduction strategies at the rayon level are as follows:

- ▲ Better planning of immunization sessions (grouping by days as outlined in the table above)
- ▲ Adherence to the “open vial” recommendations (MoLHSA decree 112/n) that allow use of open DPT, DT, Td and Hepatitis B vaccine vials for as long as 1 month provided that facilities fully meet cold chain requirements and open vials are not used outside the facility (e.g., for mass campaigns or outreach immunizations)
- ▲ Use of outreach mobile immunization brigades
- ▲ Improved cold chain to avoid exposure of vaccines to heat and freezing
- ▲ Rationalized distribution of vaccines (to use all vaccines before expiration dates and to avoid prolonged storage of unused vaccines where cold chain failure is likely)
- ▲ Training in the use of vaccine vial monitor (VVM) equipped vaccines
- ▲ Use of optimal product mix where appropriate (e.g., one- or two-dose vials in villages and 10-dose vials in urban polyclinics)

Monitoring of Vaccine Supplies and their Proper Usage

At the end of each calendar year, the rayon or town CPH calculates the need for vaccine and syringes for the coming year on the basis of annual prospective plans for immunizations for the rayon/town in general and by individual health care facility, taking into account wastage coefficients for each of the antigens and a 25 percent reserve. In order to determine the *actual number of doses and syringes needed* (which the rayon CPH should order from regional CPH during the following year), the balance of vaccines and syringes on December 31 should be subtracted from the projected annual need.

The Worksheet for Calculation of Annual Vaccine Needs and Supplies provides examples and helpful formulas for anticipating needs and doing quarterly monitoring of secured vaccine supplies to ensure uninterrupted functioning of immunization services in the rayon or town. Immunization managers at rayon CPHs and PAUs should monitor the proportion of secured supplies (balance from the previous year plus the amount received from the regional CPH in the current year divided by the annual need) for each of the antigens and take appropriate measures in case they have too little or too much vaccine in stock. The aim of monitoring these supplies is to secure 25 percent of the annual need every quarter.

At the end of each calendar year, immunization managers of the rayon CPH must submit a form of Annual Need for Vaccines and Syringes to the regional CPH no later than December 15. The form is similar to the abovementioned worksheet although it does not contain a quarterly monitoring section. The order form does contain the need for a given period (month or quarter), the balance for the time of order, and the amount of the order.

Immunization managers also could monitor whether a “safety minimum” of vaccines is available at the end of each month according to summary report 2.8. The recommended safety minimum in the rayon (balance at the CPH store and in all health care facilities) is a two-month supply, or approximately 15 percent of the annual need. It is recommended that the region keep an additional third-month supply of all vaccines (balance at the regional CPH, rayon CPH stores, and all health facilities).

Example of Worksheet on Calculation of Annual Vaccine Needs and Secured Vaccine Supplies

for _____ rayon (town) in _____ (year)

	Target for vaccination (persons)	Target for boosters (persons)	Planned number of injections	Wastage Coefficient	Reserve Coefficient	Annual need in vaccines (doses) and syringes	Balance on 31.12	Actual Need (doses)	Received from Regional CPH in the 1st quarter			Sum 1Q + Balances 31.12	Cum%	Received from Regional CPH in the 2nd quarter			Sum 1+2	Cum%	Received from Regional CPH in the 3rd quarter			Sum 1+2+3	Cum%	Received from Regional CPH in the 4th quarter			Sum 1+2+3+4	Cum%	REMARKS
									Jan	Feb	Mar			Apr	May	Jun			Jul	Aug	Sep			Oct	Nov	Dec			
	A	B	C	D	E	F = C x D x E	G	H=F-G	Jan	Feb	Mar	I	J=I:F	Apr	May	Jun	K	L=K:F	Jul	Aug	Sep	M	N=M:F	Oct	Nov	Dec	O	P=O:F	
1	BCG	500	500 a	3	1.25	1875	0	1875	500			500	27%	450		950	51%												
2	Polio	500	2500 3a + b	1.3	1.25	4063	1,000	3063				1,000	25%	500	600	2,100	52%												
3	DPT	500	2000 3a + b	1.3	1.25	3250	500	2,750	200			700	22%	700		1,400	43%												
4	DT		3a + b	1.5	1.25																								
5	Td		b	1.5	1.25																								
6	Measles Mumps Rubella		a+b	1.3	1.25																								
7	Hepatitis B		3a	1.3	1.25																								
8																													
9	Syringe 0.5		c3+c4+c5+c6+c7	1.05	1.25																								
10	BCG Syringe 0.05/0.1		c1	1.05	1.25																								
11	Dilutant Syringe (2.0)		F1:20	1.05	1.25																								
12	Dilutant Syringe (5.0)		F6:10	1.05	1.25																								
13	Safety boxes		(f9+f10+ f11+f12) : 100																										

Not enough vaccine received (25% per quarter is needed, taking into account the leftover from the last year). Order from Regional CPH asap

Note: Annual amount for each type of vaccine (doses) and syringe is calculated using specific formula considering wastage and reserve.

Example of Annual Need for Vaccines and Syringes

for _____ region/rayon (town) in _____ (year)

		Target for vaccination (persons)	Target for boosters (persons)	Planned number of injections	Wastage Coefficient	Reserve Coefficient	Annual need in vaccines (doses) and syringes	Balance on Dec	Actual Need (doses)
		A	B	C	D	E	$F = C \times D \times E$	G	$H = F - G$
1	BCG	500		500 a+b	3	1.25	1875	0	1875
2	Polio	500	1000	2500 3a +b	1.3	1.25	4063	1,000	3063
3	DPT	500	500	2000 3a +b	1.3	1.25	3250	500	2,750
4	DT			3a +b	1.5	1.25			
5	Td			b	1.5	1.25			
6	MMR			a+b	1.3	1.25			
7	Hepatitis B			3a	1.3	1.25			
8									
9	Syringe 0.5			c3+c4+c5+c6+c7+c8+c9	1.05	1.25			
10	BCG Syringe 0.05/0.1			c1	1.05	1.25			
11	Dilutant Syringe (2.0)			F1:20	1.05	1.25			
12	Dilutant Syringe (5.0)			F6:10	1.05	1.25			
13	Safety boxes			(f9+f10+f11+f12) : 100					

Note: Annual amount for each type of vaccine (doses) and syringe is calculated using specific formula considering wastage and reserve.

Example of Order Form for Vaccines, Syringes, and Safety Boxes

for _____ region/rayon/town
 Quarterly _____ monthly _____

		Need for vaccines (doses) and syringes in given period	Balance at the time of order	Amount ordered	Remarks
		A	B	C=A-B	.
1	BCG	500	0	500	
2	Polio	1000	200	800	
3	DPT	1500	500	1000	
4	DT				
5	Td				
6	MMR				
7	Hepatitis B				
8					
9	Syringe 0.5				
10	BCG Syringe 0.05/0.1				
11	Dilutant Syringe (2.0)				
12	Dilutant Syringe (5.0)				
13	Safety Boxes				

Note: Not less than 25% per quarter is needed, taking into account the leftover from the previous year.

4. Evaluating Performance of Providers and CPHs

Evaluating Work at Immunization Points

The Performance Evaluation Checklist for Immunization Providers (below) contains simple questions that district CPHs can use to monitor and supervise immunization points or that providers can use to self-monitor their work. The checklist allows for clear and objective evaluations. Periodic monitoring will help health care providers and managers to identify problem areas and plan appropriate interventions to solve the problems.

Performance Evaluation Checklist for Immunization Providers

AVAILABILITY OF REGISTRY	
1. Does Record book 1.1. reflect the annual censuses covering ALL children residing in the catchment area?	Yes <input type="checkbox"/> No <input type="checkbox"/>
2. Is Form 1.2 available at the facility/immunization point?	Yes <input type="checkbox"/> No <input type="checkbox"/>
3. Is Form 1.3 available at the facility/immunization point?	Yes <input type="checkbox"/> No <input type="checkbox"/>
4. Is Record book 1.4 available at the facility/immunization point?	Yes <input type="checkbox"/> No <input type="checkbox"/>
5. Is Record book 1.5 available at the facility/immunization point?	Yes <input type="checkbox"/> No <input type="checkbox"/>
6. Is Record book 1.6 available at the facility/immunization point?	Yes <input type="checkbox"/> No <input type="checkbox"/>
CORRECTNESS OF RECORD MANAGEMENT/ORGANIZATION	
7. Is the number of Form 063 for the given age group equal to the number of children in this age group in Record book 1.1?*	Yes <input type="checkbox"/> No <input type="checkbox"/>
8. Does the registration number in the Record book 1.1 correspond to the number on forms 112 and 063 and in Record book 1.4?	Yes <input type="checkbox"/> No <input type="checkbox"/>
9. Check to ensure Record book 1.1 is filled properly: Are there notes made about whether a child has left or arrived at a district for permanent residence (in pen) or temporarily indicating the period (in pencil)?	Yes <input type="checkbox"/> No <input type="checkbox"/>
10. Do the numbers in various age groups in Form 1.2 equal the number of the same age group in Form 1.3?***	Yes <input type="checkbox"/> No <input type="checkbox"/>
11. Is the data about immunizations performed entered into all recording forms (063,112, 1.4) during the same day?***	Yes <input type="checkbox"/> No <input type="checkbox"/>
12. Check selected Forms 063 against Record book 1.5 and Form 112. Do all carriers have same contraindications recorded and documented according to procedures?	Yes <input type="checkbox"/> No <input type="checkbox"/>
13. Does the balance of vaccines in refrigerator coincide with the balance in Record book 1.6?	Yes <input type="checkbox"/> No <input type="checkbox"/>
14. Check Record book 1.6 against Record book 1.4: Do the dates for vaccine usage coincide?	Yes <input type="checkbox"/> No <input type="checkbox"/>
CORRECTNESS OF DATA TRANSFER INTO REPORTING FORMS	
15. Are Record book 1.1 entries for age groups the same as in Form 1.2 (check all age groups)?	Yes <input type="checkbox"/> No <input type="checkbox"/>
16. Is immunization plan 1.3 made on the basis of the Population by Age Report (1.2) and Forms 063 (older children who missed the opportunity to get immunized during last year)?	Yes <input type="checkbox"/> No <input type="checkbox"/>
17. Does the number of performed immunizations in the monthly report (form 1.8) by every type of vaccination reflect the data from the Record Book for Monthly Planning and Recording of Immunizations (1.4)?	Yes <input type="checkbox"/> No <input type="checkbox"/>

18. Does Form 1.8 correctly reflect all refusals or temporary, long-term, and permanent contraindications from Record books 1.4 and 1.5.	Yes <input type="checkbox"/> No <input type="checkbox"/>
19. Does Form 1.8 correctly reflect vaccine usage for various vaccines from Record book 1.6.	Yes <input type="checkbox"/> No <input type="checkbox"/>
ANALYSIS, MONITORING, USE OF INFORMATION FOR MANAGEMENT (at the level of pediatric polyclinic, PAU, or rayon PHC)	
20. Does facility have Prospective Plan for Immunizations (form 1.3) for children and adults for every subordinate FAP (district doctor)?	Yes <input type="checkbox"/> No <input type="checkbox"/>
21. Does facility have Report on Immunization Practice (form 1.8) for every subordinate FAP (district doctor)?	Yes <input type="checkbox"/> No <input type="checkbox"/>
22. Does facility have summary monthly worksheets with cumulative numbers by every type of immunization according to the annual plan with calculation of percentage for every subordinate FAP (district doctor)?	Yes <input type="checkbox"/> No <input type="checkbox"/>
23. Does facility have records with names of children who have not been immunized or not completed DPT-3 at 4 months 29 days at each FAP as well as reasons behind it?	Yes <input type="checkbox"/> No <input type="checkbox"/>
24. Is calculation of vaccine needs for every FAP and district based on the annual plan of immunizations?	Yes <input type="checkbox"/> No <input type="checkbox"/>
25. Are vaccines, syringes, and safety boxes issued to FAPs and their usage monitored with the Record Book for Vaccine, Syringes, and Safety Box Flow (1.6)?	Yes <input type="checkbox"/> No <input type="checkbox"/>
26. Are the expired, poor quality, or leftover vaccines destroyed appropriately and in a timely manner?	Yes <input type="checkbox"/> No <input type="checkbox"/>
27. Have long-term contraindications in children over 1 year been approved by rayon Doctors' Expert Group?	Yes <input type="checkbox"/> No <input type="checkbox"/>
28. Does the facility perform regular analysis of vaccine usage/wastage?	Yes <input type="checkbox"/> No <input type="checkbox"/>
29. Have any management decisions (e.g., on improvement of coverage, vaccine wastage reduction) been made as the result of the analysis of data in the past three months?	Yes <input type="checkbox"/> No <input type="checkbox"/>
COLD CHAIN (These points are not analyzed if a refrigerator is not available.)	
30. Is there a refrigerator at the vaccination point, ambulatory, or FAP?	Yes <input type="checkbox"/> No <input type="checkbox"/>
31. Are there vaccine carriers for transportation of vaccines?	Yes <input type="checkbox"/> No <input type="checkbox"/>
32. Does the refrigerator work or not?	Yes <input type="checkbox"/> No <input type="checkbox"/>
If it does not work, for how long has it not worked and why?	
33. Has anyone been informed about the fault? Or have any other measures been taken?	Yes <input type="checkbox"/> No <input type="checkbox"/>
34. Is the temperature in the refrigerator recorded twice daily?	Yes <input type="checkbox"/> No <input type="checkbox"/>
35. Is the temperature taken at the center of the refrigerator?	Yes <input type="checkbox"/> No <input type="checkbox"/>
36. Check the temperature in the refrigerator and compare it with the recorded morning temperature on that day. Are the temperatures within the recommended range (+2° to +8°C)?	Yes <input type="checkbox"/> No <input type="checkbox"/>
37. Have vaccines been correctly placed on refrigerator shelves (polio, mumps, measles, rubella vaccines – on the upper shelf; BCG – on the middle shelf; DPT, DT, Td, immunoglobulins, bacteriophages, vaccine dilutants – on the lower shelf)?	Yes <input type="checkbox"/> No <input type="checkbox"/>
38. Are there ice packs (3-4) for vaccine carriers in the freezer?	Yes <input type="checkbox"/> No <input type="checkbox"/>
39. Are vaccines stored properly during power cut-offs? (There is no need for special storage conditions if power is cut off for less than 8 hours a day.) During a cut-off period a refrigerator should not be opened. Are vaccines stored properly in case of absence of a refrigerator at the FAP?	Yes <input type="checkbox"/> No <input type="checkbox"/>

* Sample several age groups (two to three) and check with record book 1.1.

** Check correctness of all age groups, if even one is not correct, the answer is "No."

*** Random sample from the boxes where forms 063 are kept for various age groups (pick two to three) and check against form 112 and record book 1.4 to see if the data about performed immunizations is entered into all recording forms (063, 112, 1.4) during the same day, and if the immunization information (date, type of vaccine, or refusal/contraindications) on all these forms are the same. If any of the information does not coincide, the answer is "No."

The person doing the (self-) monitoring should carefully consider each question in the checklist and respond as to whether the condition has been met or not. Where the condition has been met (“Yes”), no further clarification is needed. If a condition has not been met or has been only partially fulfilled (“No”), one should indicate exactly what is wrong and recommend how to correct the problem. Depending on the difficulty of meeting certain conditions, one should decide whether advisory assistance from central rayon or regional specialists is needed and when the next evaluation will take place. A table presented on the next page can facilitate such analysis.

Note: All facilities should be evaluated each year. The polyclinic chief should perform the evaluation together with an immunologist. An epidemiologist (or assistant epidemiologist) should use the data from the evaluation checklist during subsequent evaluations. He/she will verify the reliability of selected responses to individual questions in districts that have both unsatisfactory and good indicators. Verification will be done at every pediatric and/or therapeutic district.

Example of Evaluation of the Work of Immunization Facilities

Health Facility	Date of Visit	Number of Questions in the Checklist																			Notes		
		1	2	3	4	5	6	7	8	9	...	30	31	32	33	34	35	36	37	38		39	
FAP-1	2/1/2002	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	--	+		
FAP-2	2/2/2002	+	+	+	+	+	--	+	+	+		--	+	+	+	+	+	+	+	+	--	+	
VDA	2/3/2002	+	+	+	+	+	--	+	+	+		--	+	+	--	--	--	+	+	+	+		
TOTAL	No. of answers	3	3	3	3	3	1	3	3	3		1	3	3	2	2	2	3	3	1	3		
	% of answers "YES"	100	100	100	100	100	33	100	100	100		33	100	100	66	66	66	100	100	33	100		

Evaluating Work at Rayon CPHs

The table (below) provides simple questions that will allow the rayon CPH to self-monitor their work and the regional CPHs to monitor immunization work at the rayon level. The checklist allows for clear and objective evaluations. Periodic monitoring will help rayon health care managers and providers to identify problem areas and plan appropriate interventions to solve the problems.

Performance Evaluation Checklist for Rayon CPHs

AVAILABILITY OF RECORDS AND REPORTING	
1. Have Population by Age Reports (1.2) been collected from all subordinate facilities?	Yes <input type="checkbox"/> No <input type="checkbox"/>
2. Have Prospective Plans for Immunizations for the Next Year (1.3) been collected from all subordinate facilities?	Yes <input type="checkbox"/> No <input type="checkbox"/>
3. Have Reports on Immunization Practice (1.8) been collected from all subordinate facilities (including zero reports in case of no immunization activity)?	Yes <input type="checkbox"/> No <input type="checkbox"/>
4. Was the registration on the condition of the cold chain equipment performed in the rayon CPH?	Yes <input type="checkbox"/> No <input type="checkbox"/>
5. Was Record book for Vaccine, Syringe, and Safety Box Flow (2.6) filled out at the rayon CPH?	Yes <input type="checkbox"/> No <input type="checkbox"/>
CORRECTNESS OF RECORD MANAGEMENT/ORGANIZATION	
6. Do the numbers in various age groups in Form 2.2 equal the numbers of the same age groups in Form 2.3 ?*	Yes <input type="checkbox"/> No <input type="checkbox"/>
7. Does the balance of vaccines in the refrigerator coincide with the balance in Journal 2.6?	Yes <input type="checkbox"/> No <input type="checkbox"/>
CORRECTNESS OF DATA TRANSFER INTO REPORTING FORMS	
8. Is Form 2.8 filled out correctly?	Yes <input type="checkbox"/> No <input type="checkbox"/>
9. Is Form 2.8 filled out completely?	Yes <input type="checkbox"/> No <input type="checkbox"/>
10. Does Form 2.8 correctly reflects vaccine flow for various vaccines from Journal 2.6?	Yes <input type="checkbox"/> No <input type="checkbox"/>
ANALYSIS, MONITORING, USE OF INFORMATION FOR MANAGEMENT (at the level of rayons)	
11. Does a facility have <i>summary worksheets</i> for computation of cumulative coverage by every type of immunization for every subordinate facility?*	Yes <input type="checkbox"/> No <input type="checkbox"/>
12. Does a facility have <i>worksheets</i> to monitor contraindications to DPT in children under 1 year for every subordinate facility?*	Yes <input type="checkbox"/> No <input type="checkbox"/>
13. Does a facility have <i>worksheets</i> to monitor refusals to DPT in children under 1 year for every subordinate facility?*	Yes <input type="checkbox"/> No <input type="checkbox"/>
14. Does a facility monitor usage/wastage and balance of immunobiologicals at every subordinate facility?*	Yes <input type="checkbox"/> No <input type="checkbox"/>
15. Does a facility determine annual need in vaccines and follow their stock level?	Yes <input type="checkbox"/> No <input type="checkbox"/>
16. Does the facility perform regular monitoring of subordinate facilities using <i>Performance Evaluation Checklist for Immunization Providers</i> ?	Yes <input type="checkbox"/> No <input type="checkbox"/>
17. Have any management decisions (e.g., on improvement of coverage, vaccine wastage reduction) been made as the result of the analysis of data in the past 3 months?	Yes <input type="checkbox"/> No <input type="checkbox"/>
COLD CHAIN These points are not analyzed if a refrigerator is not available.	
18. Is there a refrigerator(s) at the rayon CPH?	Yes <input type="checkbox"/> No <input type="checkbox"/>
19. Are there vaccine carriers for transportation of vaccines?	Yes <input type="checkbox"/> No <input type="checkbox"/>
20. Does the refrigerator work?	Yes <input type="checkbox"/> No <input type="checkbox"/>
If it does not work, for how long has it not worked and why?	
21. Has anyone been informed about the fault? Or have any other measures been taken?	Yes <input type="checkbox"/> No <input type="checkbox"/>
22. Is the temperature in the refrigerator(s) recorded twice daily?	Yes <input type="checkbox"/> No <input type="checkbox"/>
23. Is the temperature taken at the center of the refrigerator(s)?	Yes <input type="checkbox"/> No <input type="checkbox"/>

24. Check the temperature in the refrigerator(s) and compare it to the recorded morning temperature on that day. Are the temperatures within the recommended range (+2 ^o – 8 ^o C)?	Yes <input type="checkbox"/> No <input type="checkbox"/>
25. Have vaccines been correctly placed on refrigerator shelves (polio, mumps, measles, rubella vaccines – on the upper shelf; BCG – on the middle shelf; DPT, DT, Td, immunoglobulins, bacteriophages, vaccine dilutants – on the lower shelf)?	Yes <input type="checkbox"/> No <input type="checkbox"/>
26. Are there ice packs (three to four) for vaccine carriers in the freezer?	Yes <input type="checkbox"/> No <input type="checkbox"/>
27. Are vaccines stored properly during power cut-offs? (There is no need for special storage conditions if power is cut off for less than 8 hours a day). During a cut-off period, a refrigerator should not be opened. Are vaccines stored properly in case of absence of a refrigerator at the FAP?	Yes <input type="checkbox"/> No <input type="checkbox"/>

* If information does not correspond, or is incomplete, the answer is NO.

** Check correctness of the worksheet, and answer NO if computation is not accurate.

The person doing the (self-) monitoring should carefully consider each question in the checklist and respond as to whether the condition has been met or not. Where the condition has been met (“Yes”), no further clarification is needed. If a condition has not been met or has been only partially fulfilled (“No”), one should indicate exactly what is wrong and recommend how to correct the problem. Depending on the difficulty of meeting certain conditions, one should decide whether advisory assistance from central rayon or regional specialists is needed and when the next evaluation will take place. A table presented on the next page can facilitate such analysis, both for self-analysis and by the Regional CPH.

Example of Evaluation of the Work of Rayon CPH

Health Facility	Date of visit	NUMBER OF QUESTIONS IN THE CHECKLIST																									Total of answers "YES"			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	"Yes"	%
-	2/1/2002	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+			
-	2/2/2002	+	+	+	+	+	--	+	+	+	+	+	+	--	+	+	+	+	+	+	+	+	+	+	+	+	+			
-	2/3/2002	+	+	+	+	+	--	+	+	+	+	+	--	--	--	--	--	+	+	+	+	+	+	+	+	+	--			
TOTAL	No. of answers "YES"	3	3	3	3	3	1	3	3	3	3	3	2	1	2	2	2	2	3	3	3	3	3	3	3	3	3	2		
	% of answers "YES"	100	100	100	100	100	33	100	100	100	100	100	66	33	66	66	66	66	100	100	100	100	100	100	100	100	100	66		