UNIT-7

Sources and use of data

Learning objectives

- *Enlist various sources of data available at block level*
- *Generate data outputs – coverage monitoring chart*
- *Identify gaps in RI using data*

Key Contents

Sources and use of data

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In every situation and/or meeting, there is usually a direct or an indirect reference to "data". As MOs, you are constantly reminded to review your data, analyse your data and to decide your actions based on data. However, many times this is not as straight forward as it appears. Data has to be carefully utilized and interpreted; and when done, should enable you to make very appropriate and confident decisions. Data handling is not limited to the data manager, even the ANM in the field can use the data to better understand how her RI sessions are performing; an ANM in the PHC can look at the immunization records in the labour room and better understand how to ensure all newborns are vaccinated.

Data management process

A flowchart of the data management process is given in Fig 7.1.

Fig. 7.1. Data management process

Collect → Collate → Represent → Interpret → Decide
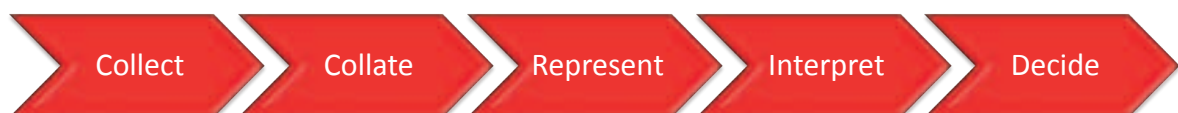
Collect

This refers to the data collection instruments or sources of information in the raw form. This includes all registers such as OPD Register, Vaccine Stock Register and OT Register, tally sheets (e.g. Polio, RI session) and supervisory formats. All these contain information that can be made useful.

Collate

Collation means entering the data into the system or into a reporting format. Thus, data normally at a block level can be used in making reports when called for by the district or the state. Data can be collated to better understand how your block is functioning, e.g. extracting information on only number of Hep B birth doses administered at your PHC over the last 3 months.

Represent

Presenting data has been made very simple with easily accessible software such as PowerPoint and Excel. It is important to decide which data to present based on which forum it is required for. For example, showing the number of births versus the number of HepB birth doses given at your PHC (Fig 7.2) during a weekly meeting can help to drive home the point to ANMs and staff.

Fig. 7.2. Sample graph – births and Hep B vaccinations
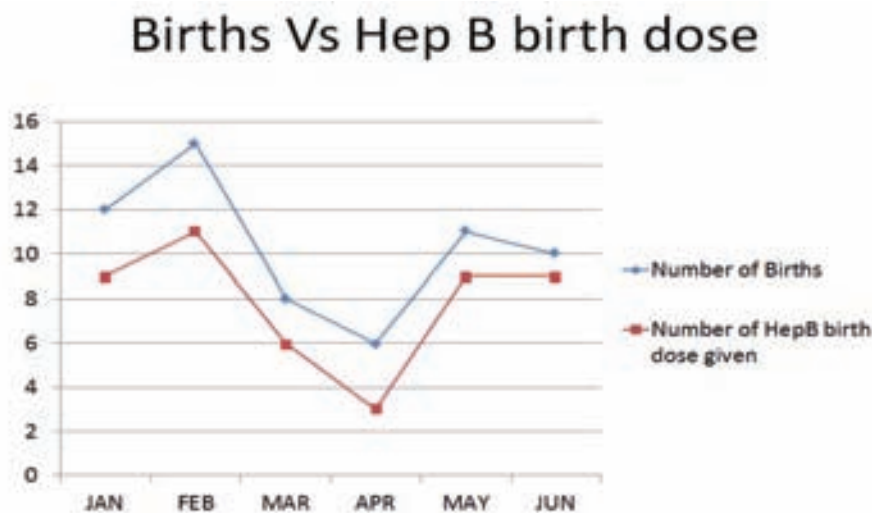
Interpret

What does my data say? Continuing with the above example,the graph in Fig. 7.2 shows that there is a difference between the number of births and HepB birth doses given. The possible reasons are:

o   children born on Sunday do not receive the dose

o   children are vaccinated during the daytime only

o   Some mothers refuse to be admitted for 2 days.

This example demonstrates that when data is presented,you can interpret to an extent; but if discussed with the staff, more reasons can be brought out and solutions identified.

Decide

Based on the above example, the MO can identify an issue, and following discussions with staff or during meetings, can then take decisions on correcting or restructuring systems in the PHC. For example, to increase the HepB birth dose, a decision could be – "one vaccine carrier with RI vaccines will be issued to the labour room to ensure administration of birth doses to all newborns at the PHC".

Sources of immunization data

Fig. 7.3. Sources of immunization data
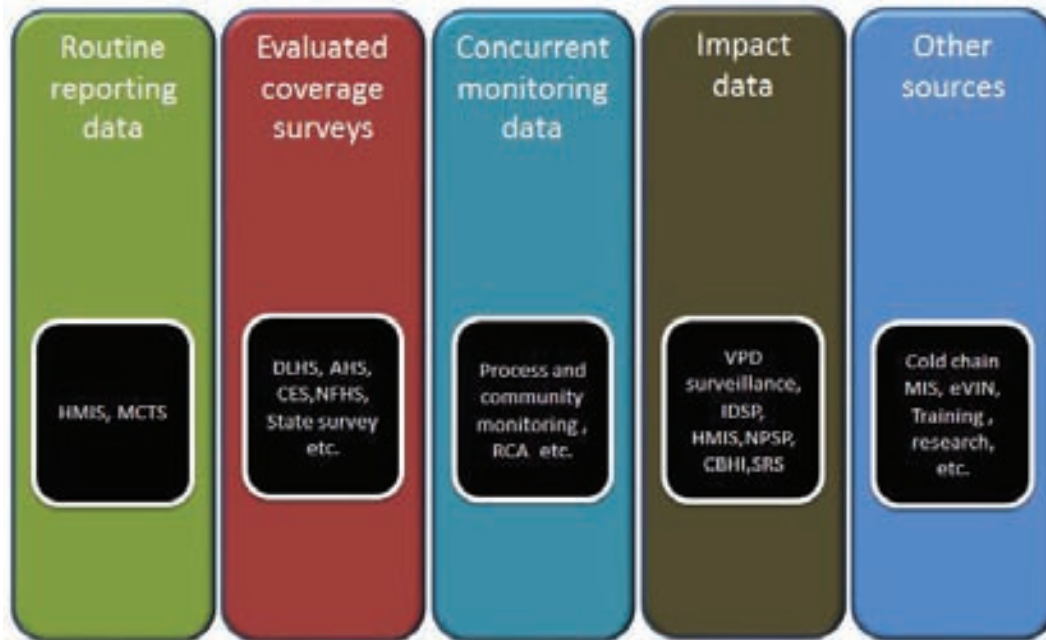
HMIS – Health Management Information System; MCTS- Mother and Child Tracking System; DLHS - District Level Health Survey; AHS – Annual Health Survey; CES- Coverage Evaluvation Survey; NFHS – National Family Health Survey; IDSP – Integrated Disease Surveillance Project; NPSP – National Polio Surveillance Project; CBHI– Central Bureau of Health Intelligence; SRS– Sample Registration System; MIS – Management Information System;

Monthly Progress Report

The Monthly Progress Report is a report of the SC submitted by the ANM at the end of each month. This report is based on correctly filled tally sheets, Maternal and Child Health (MCH)/ Reproductive and Child Health (RCH) registers and other records. Data must be recorded completely and correctly as follows:

• Yearly target of infants must be based on actual head count.

• Immunization with each antigen dose needs to be filled in correctly.

• All VPDs and AEFIs should be reported to the PHC for followup.
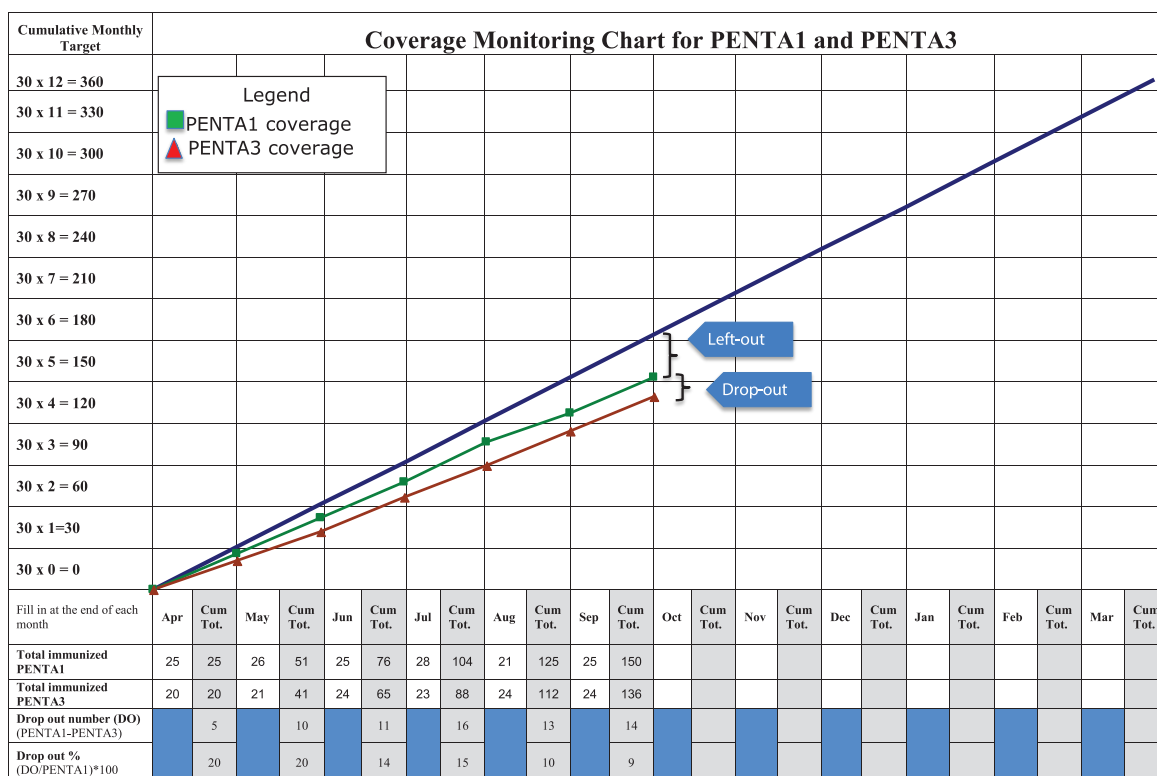
The cumulative coverage will enable you to calculate the coverage of each antigen and the dropout rates. Since this is the basis of obtaining all coverage and epidemiological data at state and national levels, the data must be recorded accurately.

Coverage Monitoring Chart

Coverage monitoring chart is a useful tool which provides information at a glance on target figures and the immunization coverage, particularly in terms of left-outs and dropouts. The supervisor should plot the immunization data on the chart during visits to the SC (as given in Fig.7.4). It should be updated every month.

Here is an example for calculating coverage, dropouts and left-outs for Penta1 and Penta3. A similar chart can be prepared for other vaccines.

Fig 7.4. Coverage Monitoring Chart

Coverage Monitoring Chart for PENTA1 and PENTA3

Legend
■ PENTA1 coverage
▲ PENTA3 coverage

Cumulative Monthly Target:
30 x 12 = 360
30 x 11 = 330
30 x 10 = 300
30 x 9 = 270
30 x 8 = 240
30 x 7 = 210
30 x 6 = 180
30 x 5 = 150
30 x 4 = 120
30 x 3 = 90
30 x 2 = 60
30 x 1 = 30
30 x 0 = 0

Fill in at the end of each month	Apr	Cum Tot.	May	Cum Tot.	Jun	Cum Tot.	Jul	Cum Tot.	Aug	Cum Tot.	Sep	Cum Tot.	Oct	Cum Tot.	Nov	Cum Tot.	Dec	Cum Tot.	Jan	Cum Tot.	Feb	Cum Tot.	Mar	Cum Tot.
Total immunized PENTA1	25	25	26	51	25	76	28	104	21	125	25	150												
Total immunized PENTA3	20	20	21	41	24	65	23	88	24	112	24	136												
Drop out number (DO) (PENTA1-PENTA3)		5		10		11		16		13		14												
Drop out % (DO/PENTA1)*100		20		20		14		15		10		9												

The coverage monitoring chart has a vertical and a horizontal axis. Vertical axis is divided into 12 equal parts, each representing the monthly target. Write cumulative target against each month. If the yearly target of infants in a Sub-centre is 360 children, then the monthly target is 360/12 = 30 children. Therefore, the cumulative target for April will be 30; for May it will be 60 (30 + 30); for June it will be 90 (30 + 30 + 30); for July it will be 120 (30 + 30 + 30 + 30), etc.

On the horizontal axis, the months of the year are given starting from April to March. In the rows below each month, write the total number of children immunized with Penta 1 and Penta 3 during that month and also cumulative till that month. On the graph, plot the cumulative total of Penta 1 for each month (on the right side of the column). Similarly, plot for Penta 3 in a different colour in the same column.

Calculating coverage for an antigen at any time

= Total Antigen administered X 100
Yearly target

Eg- Coverage for Penta 1 from Apr till July is:

104 / 360 X 100 = 28.8% rounded off = 29%

Calculate the total number of dropouts and the Dropout Rate (%) as follows:

= (Penta 1 cumulative total - Penta 3 cumulative total) x100
Penta 1 Cumulative total

Using routine data for action

As a first step to data analysis, you should:

- Ensure that the vaccination coverage report is received from all ANMs through alternate vaccine delivery system after each session;

- Check the data from the monthly progress reports (HMIS/MCTS) for timeliness and completeness.

Steps in using routine data for action (refer data in table 7.1 on page 176)

There are three major steps in using routine data.

Step 1. Quantitative data analysis to identify priority health centres for improving coverage

- Compile the population and coverage data for last quarter / full financial year.
- Calculate the immunization coverage of BCG, Penta 1, Penta 3 and Measles/MR first dose.
- Calculate the number of unimmunized with Penta 3.
- Calculate drop-out rates (BCG- Penta 3, Penta 1- Penta 3 and BCG-MCV1).
- Identify problems of access and utilization as follows:
  o Access is good if Penta 1 coverage is >80% and poor if <80%.
  o Utilization is good if dropout rate is <10% and poor if >10%.
- Prioritize the centres based on number of unimmunized children e.g. UHC Dolatpara with highest number of immunized children is given priority 1 followed by UHC Ganeshnagar, Timbawadi etc.

Step 2. Qualitative data analysis to identify problems (based on local wisdom and observations from the RI monitoring/supervision)

This involves collection, compilation and analysis of data from monitoring checklists.

–   **After the supervisory visits, collect the session and house-to-house monitoring checklists to compile the data on the following key indicators:**
    - Percentage of polio HRAs visited;
    - Percentage of sessions held;
    - Percentage of sessions where beneficiaries were found mobilized to session sites by ASHA/AWW;
    - Percentage of sessions where vaccines and logistics found brought to session site by AVD system;
    - Percentage of sessions with any reconstituted vial in use after the specified time has lapsed;
    - Percentage of sessions where due list of beneficiaries found available with ANM;
    - Percentage of sessions where due list of beneficiaries found available with ASHA/ AWW;
    - Percentage of sessions where ANM found cutting each syringe with hubcutter immediately after use;
    - Percentage of sessions where session site waste is segregated in red and black bags;
    - Percentage of sessions where four key messages are found given to the parents;
    - Percentage of sessions where caregiver is advised to wait for 30 mins after vaccination.
–   **Check for ANM area-wise indicators from the house-to-house monitoring checklists, such as:**
    - Percentage of households where RI/MCP card is available;
    - Percentage of fully immunized children;
    - Percentage of partially immunized children;
    - Percentage of unimmunized children;
    - Drop-out rates (BCG and measles/MR ,Penta1 and Penta3 , Penta3 and DPT booster, MCV1 and MCV2 etc.)
–   **Identify areas with large number of left-outs and dropouts; conduct the reason analysis to identify issues.**

– **Correlate the house-to-house monitoring data with data from session site monitoring to identify the root causes of the problems. For example, if the problem is a high dropout rate, then the causes could be:**

- poor social mobilization as due list not prepared, ASHA not working
- key messages not given at the session site
- session not held, etc.

– **Initiate actions. For example, plan to involve volunteers/link workers**

– **Identify root causes of the major problems such as:**

o vacant positions of HWs and social mobilizers

o cold chain capacity and stock availability

o sessions held versus planned

o hard-to-reach or HRAs

o training issues, behaviour of HWs and community

o IEC and IPC issues.

Step 3. Prepare action plan

- Identify interventions to improve coverage in terms of
  o short-term and long-term activities;
  o activities that can be done with limited resources (more supervisory visits, training, better use of data tools) and those that need extra resources (mobility support);
- Develop an action plan for implementing the activities with expected timeline, name of responsible person and funds required;
- Identify additional requirements and budget them in the next PIP with appropriate justification.

Table 7.1 gives the steps involved in identifying priority health centres for improving coverage while a sample action plan is given in Table 7.2.

Table 7.1.Data analysis to identify priority health centres for improving coverage (UHCs Of Junagadh)

	Step1: Compile population and immunization coverage data of last financial year (Apr 14–Mar 15)					Step 2: Calculate coverage				Step 3: Analyse the problem				Step 4: Identify problem		Step 5: Prioritize area
a	b	c	d	e	f	BCG coverage (%)	Penta 1 Coverage (%)	Penta 3 Coverage (%)	MCV1 Coverage (%)	Unimm unized with Penta 3 (No.)	BCG-Penta 3 Drop-out rate (%)	Penta 1 – Penta 3 Drop-out rates (%)	BCG-MCV1 Drop-out rate (%)	Access	Utilization	Priority (1,2,3.)
UHC Name	Infant populati on	BCG doses adminis tered	Penta 1 Doses adminis tered	Penta 3 Doses admini stered	MCV1											
Ambedkar Nagar	354	273	211	102	29	77	60	29	8	252	63	52	89	Poor	Poor	4
Dolatpara	1076	614	511	342	389	57	47	32	36	734	44	33	37	Poor	Poor	1
Ganeshnagar	963	591	497	370	233	61	52	38	24	593	37	26	61	Poor	Poor	2
Shanteshwar	632	450	455	441	298	71	72	70	47	191	2	3	34	Poor	Good	5
Timbawadi	801	483	431	226	98	60	54	28	12	575	53	48	80	Poor	Poor	3
Total	**3826**	**2411**	**2105**	**1481**	**1047**	**63**	**55**	**39**	**27**	**2345**	**39**	**30**	**57**	**Poor**	**Poor**	

Table 7.2 – Action plan for improving RI coverage

Action plan to improve immunization coverage in High risk areas

Key Issues in the block with HRAs	Root causes	Solutions with existing resources	Solutions with extra resources	Person/s responsible	Time-line	Completed (Yes / No), if No, reason
Large numbers of missed children among migratory and HR population	Lack of awareness Fear of AEFI Fear of wage loss Due lists of beneficiaries not prepared Weak IEC and IPC	Orient community leaders and train HWs to inform and counsel the caregivers for immunization	Improve IEC by wall paintings, posters, local cable TV, announcements	MO I/C, BEE and Health supervisors	By the end of 3 months	
	Lack of mapping done	Identify and map the slums and low income neighborhoods called key focus areas	Hire ASHA/Mahila Arogya Samiti (MAS) member, one for every 200 – 500 households in focus areas			
Poorly identified geographical boundaries in urban areas	Lack of health infrastructure	Use available AWCs or any other place available	Establish UPHC for every 50 – 60 000 population			
	Acute shortage of human resources	Conduct RI sessions by deploying staff from rural areas or hiring contractual staff				
			Recruiting the regular ANMs, one for every 10 – 12 000 population			
RI sessions are not held as the HFAs are not included in the RI-microplans	RI microplans not prepared Lack of supervision	Listing and mapping of areas including of areas including HRAs and including them in RI microplans	Regular review of microplans to ensure that all HRAs receive the RI services			

Table 7.3. Role of MO in data management

Medical Officer's role	Activity	How
Understanding sources of data	• Explore the sources of data available at your centre • Understand the types of reports generated • Build capacity of data manager to generate data output	• Allocation of time with data handler/data operator/ personnel involved in reporting
Improving quality of data	• Cross check data randomly • Timeliness and completeness of reports • Quality of data capture	• While signing documents/ reports, cross check the data with original formats • During field visits, discuss the tally sheets being used with ANMs/personnel • Involvement of data manager in meetings to identify and solve data issues
Using data for action	• Produce graphs from data • Coverage monitoring charts at PHC/SC • Data interpretation	• Encourage the data manager to produce graphs and represent data • Insist on the use of the coverage monitoring chart both at your PHC and by ANMs at SC to track coverage of various antigens • Use these charts in meetings for tracking progress