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REACH Data Use Training Manual

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Table of Contents

Background and Introduction

In early 1999, a Task Force was constituted by the Ministry of Public Health (MOPH) which resulted in the development of a health recording-reporting system called the "Health Information System" (HIS). The Afghanistan National Health Resources Assessment (ANHRA) conducted in the summer of 2002 found that about 2/3 of all functioning health facilities had copies of the HIS forms available. However, very few of the reports found their way to the central HIS unit in the MOPH and much of the reported information was not used by the majority of the facilities. In 2003 the MOPH formulated its priorities in the Basic Package for Health Services (BPHS), and this was the starting point for a re-assessment and full revision of the HIS by the revived HMIS Task Force. To better reflect the Ministry's intent to use the system to improve management of the BPHS, the revised HIS has been renamed the Health Management Information System (HMIS).

REACH conducted HMIS Training of Trainers for all grantee NGOs and, with the technical assistance of REACH, NGOs conducted HMIS training for the staff of health facilities they support. The Planning, Monitoring and Evaluation unit of REACH found that the data collected by the health facilities using the HMIS are not used locally. Thus it was decided to develop this Data Use Training Manual and to carry out training for REACH NGO grantees' technical staff and health facility directors. In turn, the health facility directors are expected to conduct this training for the rest of the health facility staffs.

This data use training manual has six topics and is designed for a three day course.

Purpose of this Manual

After completing of this course, participants are expected to be able to:

- Understand the importance of using data locally
- Analyze the volume and mix of services provided and identify seasonal changes in disease patterns
- Graph key demographic characteristics of their catchment population; calculate targets for key health services
- Use household survey data to assess service utilization rates in the area
- Use HMIS data to monitor the utilization coverage of key services
- Use HMIS data to monitor stockout of essential drugs
- Use HMIS and Community Mapping data to monitor the performance of health posts

Topic 1*:* Demographic characteristics of the population, target groups

Source: CAAC, CSO and BHH.

Indicator: Age pyramid, # children under 1, # pregnancies, # Deliveries, # WRA.

Tabulation: Catchment area map

Analysis: Setting targets for service provision.

Needed for the exercise:

- One combined CAAC filled out (Facility + CHWs)
- CSO population
- Map of the district
- List of villages
- Paper, ruler, pen and calculator

Objective:

- Be able to know the key indicators of BPHS and their related target groups
- Familiarize and involve the facility staff to find target groups
- Be able to calculate the target group for the catchment area, and setting objectives for the priority indicators.

Discussion questions:

- What do you know about indicators? (*An indicator is a numerical measure that provides information about a complex situation or event. When you want to know about a situation or event and cannot study each of the many factors that contribute to it, you can select indicators that best summarize the situation. By observing or measuring these indictors, you will get a good idea whether the situation or event is normal, or below normal*)
- Can you give some examples of indicators?
- What are key indicators in health?
- Please give some examples of key health indicators in Afghanistan
- By giving the name of an indicator, please specify the related target group

There are several options to find the denominators/target groups. Denominators can either be extracted from ***CAAC*** or estimated from available population of ***CSO***.

Scenario 1

If CAAC has been performed for the catchment area of a facility (area directly covered by the facility and by the CHWs supervised by the facility), the last CAAC contains all demographic data and the coverage information. The CAAC contains the total population, the number of WRA, children under 1, children under 5 etc… that should be used as denominator for setting targets and evaluating results.

In the ideal world, CAAC will give you the most accurate figures for the target groups. To see how the target groups can be extracted from CAAC, please see the below table:

Indicator	Denominator/ target group	CAAC data items	Notes
ANC and TT2+ coverage	# pregnancies	B2.1 + B2.2 + B2.3	This would approximately equal 2 times B2.4
PNC coverage	# deliveries	B3.1 or [B2.1 + B2.2]	B3.1 should equal B2.1+B2.2. if there is a discrepancy, pick the latter.
DPT3 coverage	# children <1	A1: [male <1 + female <1]	This should equal B5.3
Family Planning	Women of Reproductive Age	B1.1	B1.1 should equal A1: (Females 15-20 yr) + (Female 20-49 yr).

Scenario 2

If CAAC is not conducted, one can take the CSO population, apply the % that a certain facility should cover and then calculate the proportion of each target group for the activities. The below steps can be used to estimate the number of target groups.

Step 1: use the list of villages and their populations and identify which village belongs to the catchment area of your facility.

Step 2: in each village estimate the total number of target groups/denominators:

A. Children <1 = 4.8 X total population ÷100 **X** K_1 (K_1 is the correction for infant mortality and based on a national IMR of 165/1000 or **0.9175**)
B. No. of pregnancies = 4.8 X total population ÷100 **X** K_2 (K_2 is the correction for still births and abortions and is usually considered **1.15**)
C. No. of deliveries ≈ 4.8 X total population ÷ 100
D. No. of eligible couples for family planning services = 23X total population ÷ 100

In other words:

Indicator	Denominator/ target group	Calculation	Notes
ANC and TT2+ coverage	# pregnancies	Total population X Crude Birth Rate X (1.15)	Afghanistan Crude Birth Rate = 48/1000
Example: (total population 10,000)		10,000 X 4.8 ÷100 X 1.15 = **552** pregnant women	
PNC coverage	# deliveries (~ # live births)	Total population X Crude Birth Rate	
Example: (total population 10,000)		10,000 X 4.8 ÷100 = **480** deliveries per year	
DPT3 coverage	# children <1	1+(1-IMR) ÷ 2 X # live births or 1-IMR ÷ 2 X # live births	Afghanistan Infant Mortality Rate (IMR) = 165/1000
Example: (total population 10,000)		480 X 0.9175 = **440** children <1	
Family Planning	Women of Reproductive Age	(0.23 X total population)	
Example: (total population 10,000)		(23 X 10,000 ÷100) = **2300** WRA	

Setting targets for each Indicator

You can't reach out to a 100% of these target groups over night; this is why NGOs have set targets (in percentage) for a number of key indicators based on the results of their baseline household surveys. You need to set targets for each local indictor that you have indicated to track.

To set objectives for your local program indicators, you should work with your clinic staff, your supervisor, and central-level staff to set reasonable objectives.

To see how many of these target groups need to be served to achieve a certain level of coverage, you should multiply each of them with their corresponding target

Here is an example of setting targets applying the above estimation method.

Catchment area population = 10,000

Indicator	Denominator/ target group	Calculation	Target %	Example
ANC and TT2+ coverage	# pregnancies	10,000 X 4.8 ÷100 X 1.15 = 552 pregnancies	25%	25 X 552 ÷100 = **138** pregnant women should receive at least 1 ANC visit
PNC coverage	# deliveries (~ # live births)	10,000 X 4.8 ÷100 = 480 live births	25%	25 X 480 =**120** recently delivered mothers should be visited over one year period
DPT3 coverage	# children <1	480 X 0.9175 = 440 <1 Child	80%	80 X 440 = **352** under 1 kids should receive DPT3 during one year period
Family Planning	Women of Reproductive Age	23 X 10,000 ÷100 = 2300 eligible couples	40%	40 X 2300 ÷ 100 X 12 = **11040** couple.month protection should be provided by the health facilities and health posts over one year to achieve the target.

Now you have answers to the following questions:

a. How many people are living in the catchment area of your health facility?
b. What percent of the population have immediate access to the health services?
c. How many pregnant women are living in your HF catchment area?
d. How many women of 15-49 ages are living in the area?
e. How many children of <1 are living in the catchment area?
f. How many children of <5 are living in the catchment area?

Topic 2: Volume of services
Source: HMIS; required for this exercise: the health facility MIARs of the last six month, the health facility MAARs of the last six month
Indictors: client load (health facilities & health posts), mix of services, major client groups; top ten diseases
Tabulation/presentation of data: line chart (trend analysis), pie chart
Analysis: monitoring improvement and seasonal changes

Objective
- understand the meaning of performance indicators and select from a list those basic indicators that are key to monitor delivery of BPHS services
- be able to describe the use of line, bar and pie charts
- use line, bar and pie chart to monitor the basic performance indicators of a health facility (service delivery)

Discussion questions
- Which of the following indicators do you think are most useful in monitoring the performance of your health facility? What other indicators (not listed here) do you think would be key in measuring your health facility performance?

Indicator	**Definition & Source**	**How can the data be used?**
# of female >5 served # of <5 served	MIAR: patients/clients (F >5) & (F+M<5)	Identify trends; causes for the current trends; identify the need for change; design interventions for change
top ten diseases	MIAR: A1. OPD Morbidity	Identify top ten most prevalent diseases treated; plan for the necessary stock of key pharmaceuticals; design preventive interventions
# deliveries carried out at the health facility	MIAR: C3.1 & 2	Identify the current trend and whether the trend should change; design interventions for change; monitor effectiveness of the interventions
# new acceptors of family planning methods	MIAR: C1	Identify the current trend and whether the trend should change; design interventions for change; monitor effectiveness of the interventions
Method mix among new acceptors	MIAR: C1	Identify most commonly prescribed methods and see whether they are according to expectations or not; necessity for change; design interventions for change;
# lab confirmed TB cases who started treatment	MIAR: G1.2	Identify the current trend in case detection and treatment and whether the trend should change; design interventions for change; monitor effectiveness of the interventions
# families visited by Health Posts	MAAR: total number of families visited	Identify the current trend and whether the trend should change; design interventions for change; monitor effectiveness of the interventions

Exercises

Note: for doing these exercises you will need to have the MAARs and MIARs of your health facility for the last six months. Use the provided templates and grids for constructing line, pie and bar charts to present the appropriate indicators.

1- Using a line chart, plot the trend of >5 female clients served in your health facility over the past six month. In the same chart plot the trend of <5 clients served during the same period.
(Probing questions)
- How do these trends look like? Decreasing, increasing, constant or fluctuating?
- Do you think this trend is acceptable or you need to do something to change it?
- What are the most likely causes of the current trend?
- If you need to change the trend, what interventions should be adopted?
- Which one of these interventions is within your control at the health facility level? How are you going to share this information with your staff?
- Which one of them is beyond your control at the health facility level and what needs to be done so that you can get the necessary support?

2- Repeat the above exercise for the new acceptors of family planning services.

3- Using a pie chart, indicate the share of each family planning method among the new acceptors.
(Probing questions)
- Which method is most commonly used? Which method is used the least?
- Which method is used less than you expected? Which method is used more than expected?
- What is the most likely underlying cause for these conditions?
- Do you think you need to bring any changes to the share of any of the methods?
- If you need to change this pattern, what interventions should be adopted?
- Which one of these interventions is within your control at the health facility level? How are you going to share this information with your staff?

Which one of them is beyond your control at the health facility level and what needs to be done so that you can get the necessary support?

How to Draw a line Graph

Line Graph is used to show the trend of an indicator (e.g. # people served, etc) over time.

Step 1. Using the line chart template below, label the small boxes below the horizontal line (called horizontal axis) to correspond to the months of data that your graph will represent. In this template, the graph can cover a period of 18 months.

Step 2. Now you need to scale the left vertical line (called vertical axis) appropriately and label the marks on it. Depending on the expected values of your indicator, you need to determine a maximum to mark the highest limit of your vertical axis. For example, if you want to plot the trend of >5 females served in your clinic and during the past six month, the maximum monthly value has been 600, choose 720 (ie 600 + 20%*600) as the maximum value on the vertical axis. Then, label the vertical axis marks to start at 0 and finish at the maximum (720 in our example).

Note: if the monthly variation of the indicator is expected to be low, instead of starting at 0, you can start at a higher value, but you need to keep this point in mind at the time of interpretation.

Step 3. Plot the value of your indicator from each month (from the sources that you've already identified, for example total female >5 (new) from MIAR) on the chart. For each month, put a dot on the graph to show the value of the indicator (total >5 female new clients served from

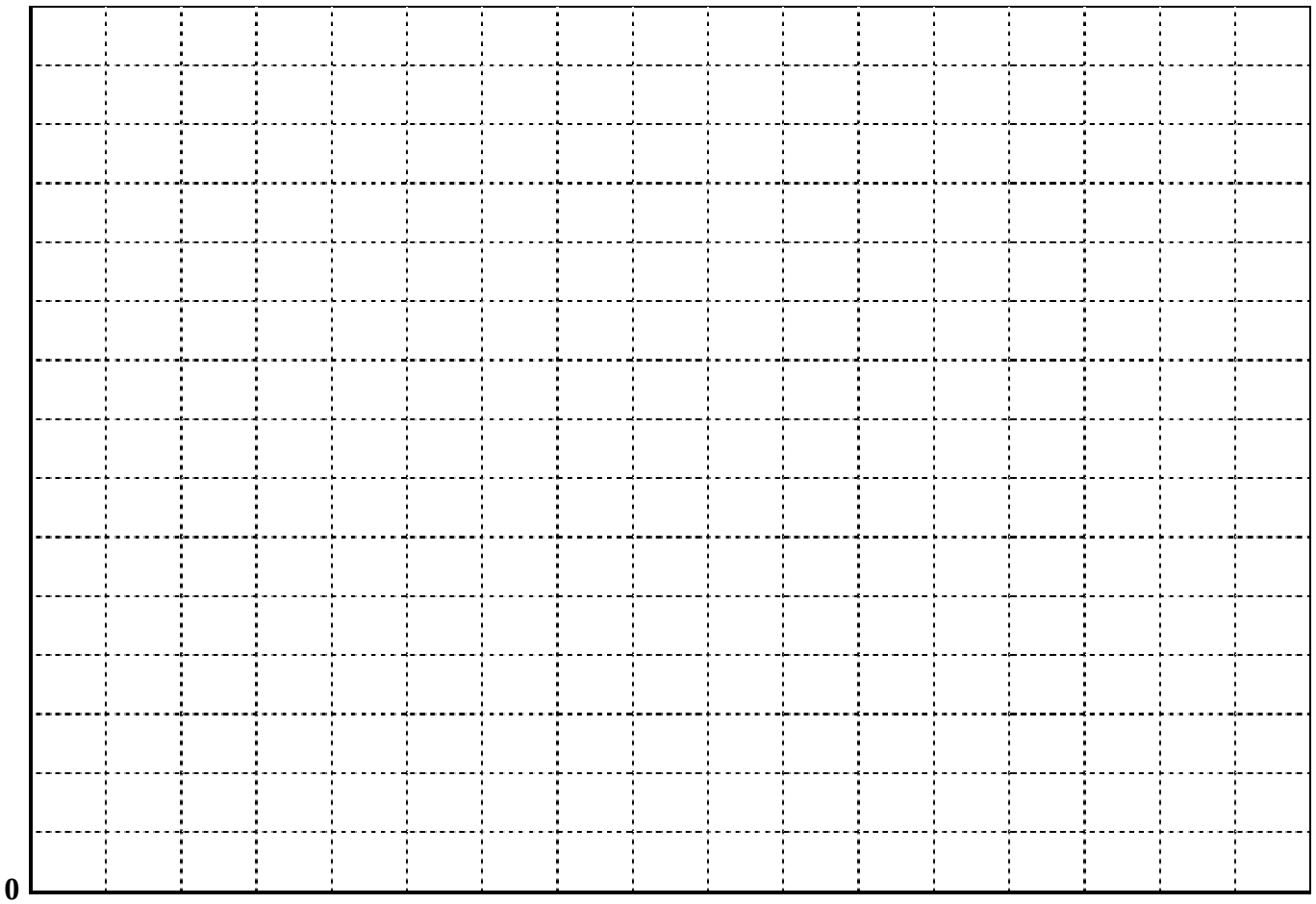
MIAR of each month) for each month.
Step 4. connect all the dots that you have plotted on the graph. This line will show the trend of your selected indicator over the past few months. For the next month(s), you only need to make a new dot showing the new value of your indicator and connect the dot to the previous month. Continue to do the same for each month to monitor the future trend of the indicator and to see whether your interventions have been effective in changing the trend.
Note: You can plot two related indicators in one chart and have two different trend lines in one graph. For instance, you can plot the # >5 female clients and <5 clients on the same graph. Plotting more than one trend on one graph (if selected appropriately) can give you additional insight that can facilitate the interpretation of data.

Line Graph

Facility name and code:_____

Period covered: _____ Last updated: _____

Trend Analysis of _____ (name of the indicator)



Observation:

Possible interpretation/ causes	Possible intervention

How to make a pie chart

Pie chart is used to show the mix of services, diseases and share of different subgroups of data under a more general indicator (e.g. mix of various family planning services among new acceptors) over a given period of time (a month, quarter or 6 months). To make a pie chart you first need to correctly fill the data table and make a few simple calculations.

Step 1. In the data table, first list the names of different subgroups of data you want to compare (for example under FP new acceptors, condom, pills, injectables, IUDs, surgical and others). Then, fill in the blanks under A with the total value for each group (for example total condom users during the past 3 months, total pill users etc). Add up this column of numbers; the total ("B") should be equal to the total number of the general indicator (total new accepters of FP during the last three months for example).

Step 2. To calculate column C, you need to divide each of the values under A by the total "B" (in our example, number of condom users by total, number of pill users by total and so forth). The results in C will always be decimal between 0 and 1.

Step 3. Multiply each number in column C by 100 to obtain a percentage and round to the nearest whole percent. Enter the percentage in column D. Each number represents the percentage of the total that fall under each subgroup.

Step 4. Check your calculations by totaling the percentages listed in column D. the sum of the percentages should equal 100.

Note: Due to rounding, the numbers might not total 100. For ease in drawing the pie chart, you may want to adjust one of the percentages so that the numbers do total 100.

Step 5. Choose one mark on the circle and draw a line connecting it to the center; this will be your starting point. Your blank pie chart has 100 marks; each mark represents one percentage point. To make a pie chart, you will be drawing a wedge for each subgroup of data. Each wedge should represent one of the percentages you calculated under column D above.

Pie Chart

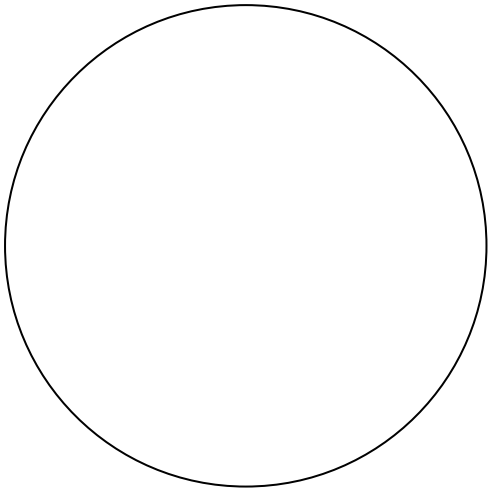
Facility name and code:_____

Period covered: _____

Data table

Groups	A	C	D
	Value	Fraction of total A÷B=C ↓	Percent of total C*100=D ↓
……			
……			
……			
……			
……			
……			
……			
Others			
Total	B =	1.00	100 %

_____ (name of the indicator)



Observation:

Possible interpretation/causes	Possible intervention

Topic 3: Service Utilization Rates
Source: Baseline Household Survey and Midterm Household Survey
Indicators: Baseline Household Survey Indicators
Tabulation/ Presentation of data: Bar chart, Score Card (Priority status of the SAs)

Objective

- Be able to identify the high priority area and identify priorities for intervention
- To be familiar with Household Survey and ten key indicators
- Be able to distinguish the performance between Baseline and Midterm Household Survey
- Be able to create and describe the use of Bar chart

Discussion Questions

1. Using the Analysis Sheet at the Supervisory Areas level please identify:
   - The high priority Supervisory area based on Baseline Household Survey indicators
   - The high priority indicator based on five Supervisory Areas

Analysis at the SA (supervisory area) level. Red: high priority, yellow: medium priority and green: low priority.

				Indicators (Per cent)									
				Reproductive Health		Safe Motherhood				Child Health			
Province	NGO	District-SA	No. of households	Contraceptive prevalence rate	Knowledge two modern contraceptive methods	Births attended by a skilled attendant	Mothers receiving PNC after delivery	Mothers attending one ANC visit	Mother receiving TT injections	Children 1-2 fully immunized (DPT3)	children 1-2 received Vitamin A therapy	Children exclusively breastfed during first 6 months	Mothers with appropriate careseeking behavior
Kabul	BRAC	Paghman-1	2,732										
		Paghman-2	1,119										
		Paghman-3	4,480										
		Paghman-4	4,252										
		Paghman-5	5,949										
		CA total	*18,532*	*24.9*	*25.4*	*26.9*	*17.1*	*43.9*	*81.7*	*15.8*	*58.5*	*54.2*	*26.3*
	IMC	Shakardara-1	3,868										
		Shakardara-2	3,814										
		Shakardara-3	3,757										
		Guldara-4	3,456										
		Qarabagh-5	3,419										
		Qarabagh-6	3,581										
		Qarabagh-7	3,864										
		CA total	*25,759*	*15.4*	*12.7*	*25.2*	*12.8*	*40.1*	*68.5*	*17.3*	*72.3*	*52.7*	*31.2*
	STEP	Farza-1	4,608										
		Mirbachakot-2	6,712										
		Mirbachakot-3	5,635										
		Kalakan-4	5,697										
		Kalakan-5	2,032										
		CA total	*24,684*	*16.1*	*20*	*34.9*	*27.2*	*64.7*	*69.4*	*16*	*75.4*	*62.6*	*30.1*
		REACH Kabul	68,975	17.9	18.4	29.2	19.2	50.2	71.9	16.4	70.2	56.8	29.7

2. Which of the following indicators are the most useful in monitoring the performance of your health facility?

- % women of reproductive age (15-49 years) who are using (or partner is using) a contraceptive method
- % women of reproductive age (15-49 years) who can identify at least two forms of modern contraception
- % births attended by a skilled birth attendant
- % children >= 1 year and < 2 years fully immunized (DPT3)
- % children >= 1 year and < 2 years who received Vitamin A therapy
- % children 0 to 6 months exclusively breastfed
- % mothers receiving PNC after delivery
- % mothers attending at least one ANC visit
- % mother receiving TT injections
- % mothers reporting appropriate behavior for treating a sick child

3. Using the Analysis Sheet at the Supervisory Areas level:

- Please identify those areas that the performance was improved and the priorities were changed to medium and low priority areas.

Analysis at the SA (supervisory area) level. Red: high priority, yellow: medium priority and green: low priority.

			Indicators (Per cent)					
			Reproductive Health	Midterm	Safe Motherhood	Midterm	Child Health	Midterm
Province	NGO	District-SA	Contraceptive prevalence rate	Achievements	Births attended by a skilled attendant	Achievments	Children 1-2 fully immunized (DPT3)	Achievements
Kabul	BRAC	Paghman-2	●	●	●	●	●	●
		CA total	*24.9*		*26.9*		*15.8*	
		Target	***45***	***45***	***40***	***40***	***85 (Int 60)***	***60***
	IMC	Qarabagh-7	●	●	●	●	●	●
		CA total	*15.4*		*25.2*		*17.3*	
		Target	***40***	***35***	***40***	***30***	***65***	***60***
	STEP	Kalakan-5	●	●	●	●	●	●
		CA total	*16.1*		*34.9*		*16*	
		Target	***30***	***30***	***45***	***45***	***40***	***40***
		REACH Kabul	17.9		29.2		16.4	

How to make a Bar Chart

Step1. Label each small box, below the horizontal line on the blank chart, with an abbreviation of each source of information among new acceptors used in your monthly summary report. There are ten boxes, so your chart can show up to 10 different sources of information. If you collect data on more than 10 sources, consider combining some sources.

Step2. Starting at zero in the lower left corner, label the marks on the far left vertical line in increment of 5, 10, 20, or 100. The numbers on the vertical line represent the number of new acceptor. Identify the largest number of new acceptor for a single source of information and choose a scale that will accommodate this number.

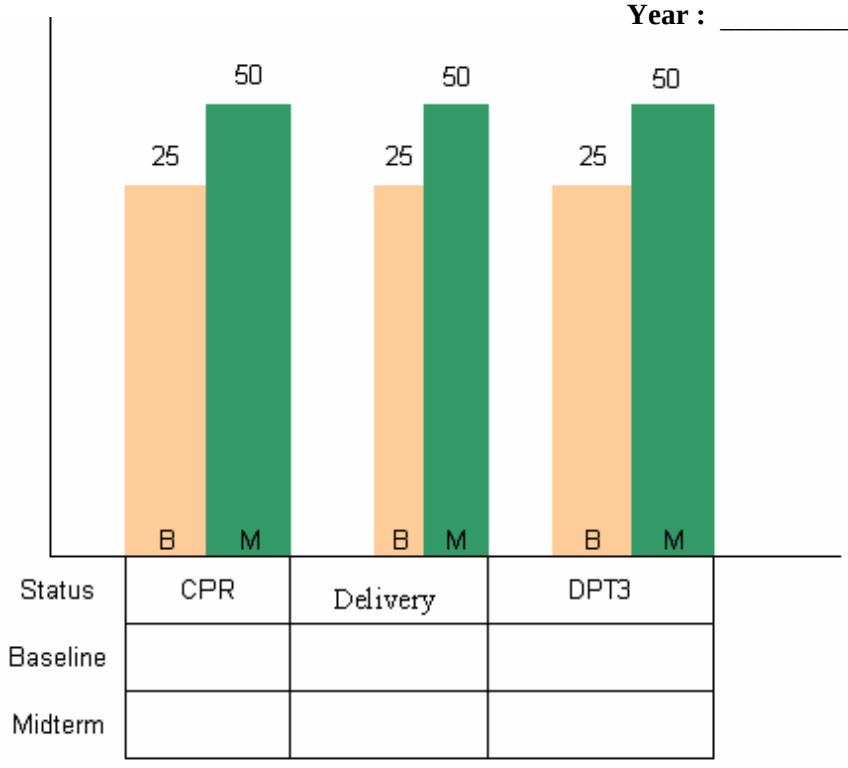
Step3. Mark the chart to show the number of new acceptor for each source of information. Draw a vertical bar for each source. Fill in the bars with colors or some design to distinguish them from background.

Bar Chart

Clinic: _____

Month: _____

Year : _____



Observations:	
Possible Interpretations	**Possible Actions**

Exercise: in order to do the exercise you need to have the Analysis Sheet at the Supervisory areas level (Baseline and Midterm Household Survey).

1. Using a Bar chart, plot the decision rule of Birth Attended by Skilled birth attendance which was achieved by Baseline and Midterm Household Surveys in your catchment area.

- Please compare the Baseline Household Survey result with Midterm Household Survey
- Do you think this result is acceptable or you need to do something to change it?
- What further interventions and actions are needed in order to achieve the targets?
- How are you going to explain this information with your facility staff and engage them into taking action?

2. Using a Bar chart, plot the decision rule of Contraceptive Prevalence Rate which was achieved by Baseline and Midterm Household Surveys in your catchment area.

- Please compare the Baseline Household Survey result with Midterm Household Survey
- Do you think this result is acceptable or you need to do something to change it?
- What further interventions and actions are needed in order to achieve the targets?
- How are you going to explain this information with your facility staff and engage them into taking action?

3. Using a Bar chart, plot the decision rule of Children 1-2 Immunized DPT3 which was achieved by Baseline and Midterm Household Surveys in your catchment area.

- Please compare the Baseline Household Survey result with Midterm Household Survey
- Do you think this result is acceptable or you need to do something to change it?
- What further interventions and actions are needed in order to achieve the targets?
- How are you going to explain this information with your facility staff and engage them into taking action?

Definition of Household Survey Indicators

Indicator	Numerator	Denominator
1) % women of reproductive age (15-49 years) who are using (or partner is using) a contraceptive method	Number of non-pregnant women of reproductive age (15-49) who are either themselves or their partner currently using a modern controceptive method	Total number of non-pregnant women of reproductive age(15-49) who were interviewed
2) % women of reproductive age (15-49 years) who can identify at least two forms of modern contraception	Number of non-pregnant women of reproductive age (15-49) who can name at least two modern methods of controception	Total number of non-pregnant women of reproductive age (15-49) who were interviewed
3) % births attended by a skilled birth attendant	Number of mothers of a child 0 to 11 months old whose baby was delivered by skilled birth attendant (doctor, midwife/ auxillary midwife, or nurse)	Total number of mothers of children 0 to 11 months old who were interviewed *
4) % children >= 1 year and < 2 years fully immunized (DPT3)	Number of children betweem 12 to 23 months old who received at least 3 doses of DPT where at least one dose was recorded on their vaccination card	Total number of mothers of children 12 to 23 months old who were interviewed*
5) % children >= 1 year and < 2 years who received Vitamin A therapy	Number of children betweem 12 to 23 months old who received Vitamin A during the previous 6 months based on their vaccination card or mother's recall	Total number of mothers of children 12 to 23 months old who were interviewed *
6) % children 0 to 6 months exclusively breastfed	Number of mothers of a child 0 to 11 months old whose baby was exclusively breastfed during the first six months	Total number of mothers of children 0 to 11 months old who were interviewed *
7) % mothers receiving PNC after delivery	Number of mothers of a child 0 to 11 months old who had at least one PNC visit during the first two weeks following delivery	Total number of mothers of children 0 to 11 months old who were interviewed *
8) % mothers attending at least one ANC visit	Number of mothers of a child 0 to 11 months old who had at least one ANC visit duiring their lastest pregnancy	Total number of mothers of children 0 to 11 months old who were interviewed *
9) % mother receiving TT injections	Number of mothers of a child 0 to 11 months old who received at least one TT injection duiring their lastest pregnancy	Total number of mothers of children 0 to 11 months old who were interviewed *
10) % mothers reporting appropriate behavior for treating a sick child	Number of mothers of a sick child 0-2 years old who reported appropriate behavior for treating a sick child during a recent (within the past two weeks) episode of diarrhea, fever or ARI	Total number of mothers of a sick child 0-2 years old who were interviewed *

Topic 4: Service utilization coverage

Source: CAAC, Baseline household survey, HMIS;

Indicators: DPT3 coverage rate, rate of deliveries attended by skilled personnel, rate of pregnancies receiving at least one ANC visit, couple*month protection provided

Tabulation/presentation: line chart (simple and cumulative)

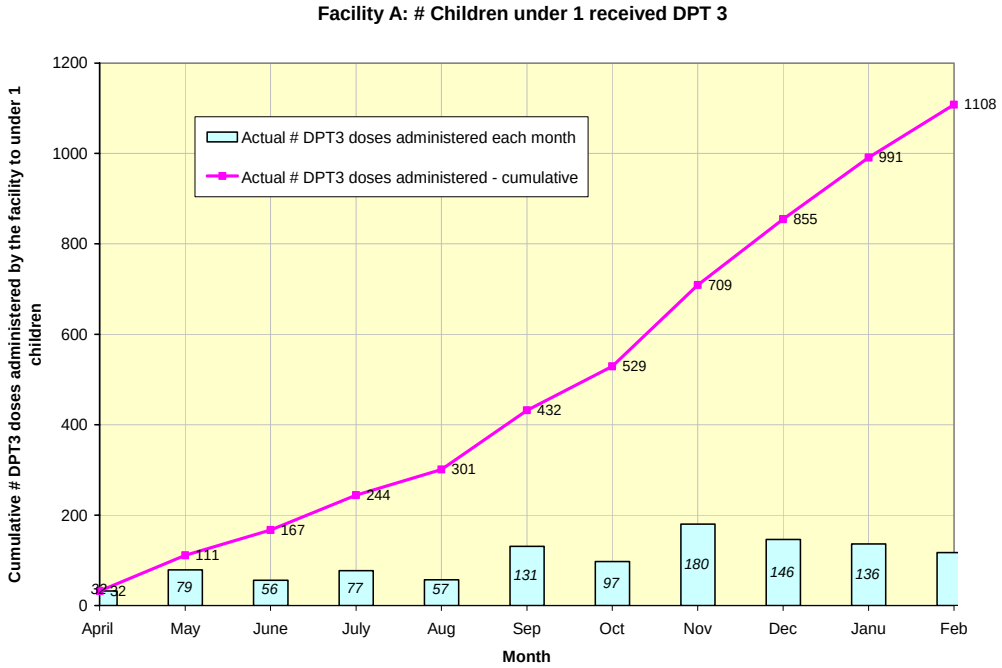
Objective

- Be able to describe the difference between a simple frequency chart and cumulative frequency chart
- Use demographic and target group data, HMIS and baseline household survey data to monitor the utilization coverage for EPI, antenatal care, deliveries by skilled personnel and family planning services
- Be able to identify trends and needs for change in the current status and analyse most likely causes
- Design interventions to make changes happen

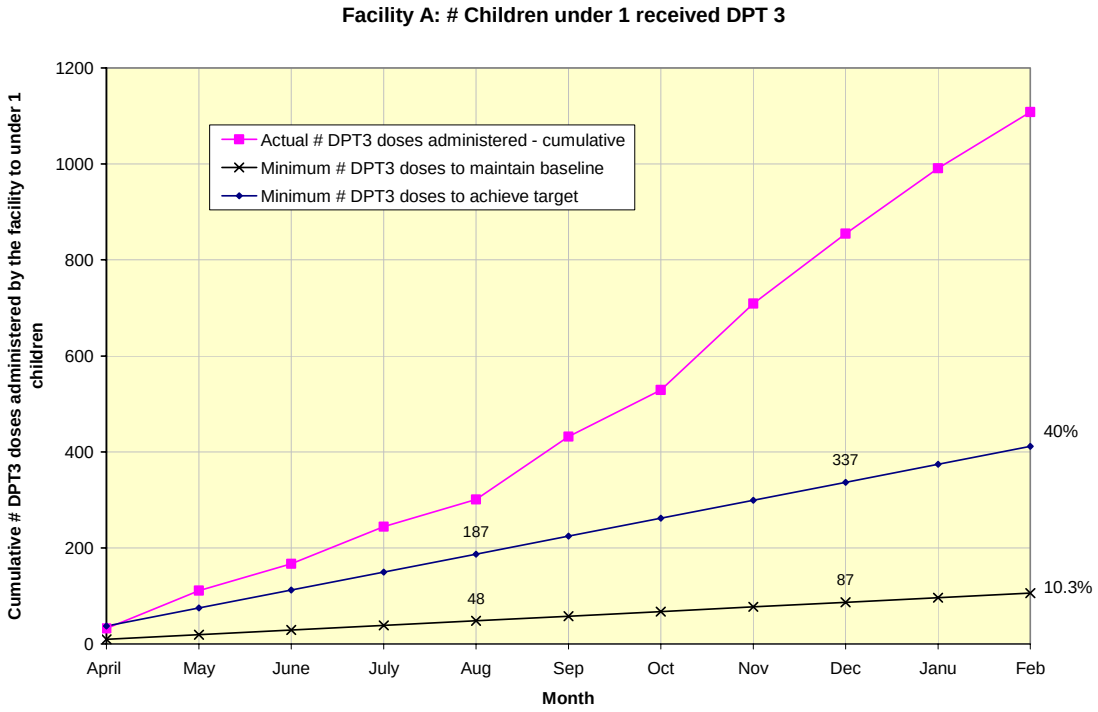
Discussion questions

The below charts demonstrate the performance of a health facility on DPT3 vaccination in its catchment areas.

- On which HMIS form and where exactly can you collect the number of DPT3 doses administered to under 1 children?
- In the first chart, explain what does each of the following mean?
  - The vertical axis and its values
  - the bar graph
  - the line graph
- How do you think the line and bar graph are related?



- On the second chart, explain what does each of the following mean?
  - The line marking the baseline and the percentage in front of it
  - The line marking the target and the percentage in front of it
  - Where do you think we can get the information for constructing these two lines?
  - In your opinion, how does the actual performance compare to the baseline and the target?



Exercises

Note: for doing these exercises you will need to have the MAAR and MIARs of your health facility for the last six months. You will also need to have the total number of children under 1, pregnant women, deliveries last year and number of eligible couples in your catchment area (this information is the output of session 2. You will also need to know the baseline and target values for four indicators measured through the baseline household survey in your grant's catchment area. Use the provided templates and grids for constructing cumulative line charts to present the appropriate indicators.

1. Using the output of your exercises in session 2, draw the cumulative line graph of DPT3 for children under one year old (use the form below for practical work). Describe the meaning of the line on the graph.
2. Using the information of vaccinations over the past six months found in the MIAR form, draw a cumulative line graph of DPT3 for children under one year old.
   a. What was the success rate to achieve the target?
   b. What are the potential reasons for this situation?
   c. For better provision of health services what interventions are necessary?

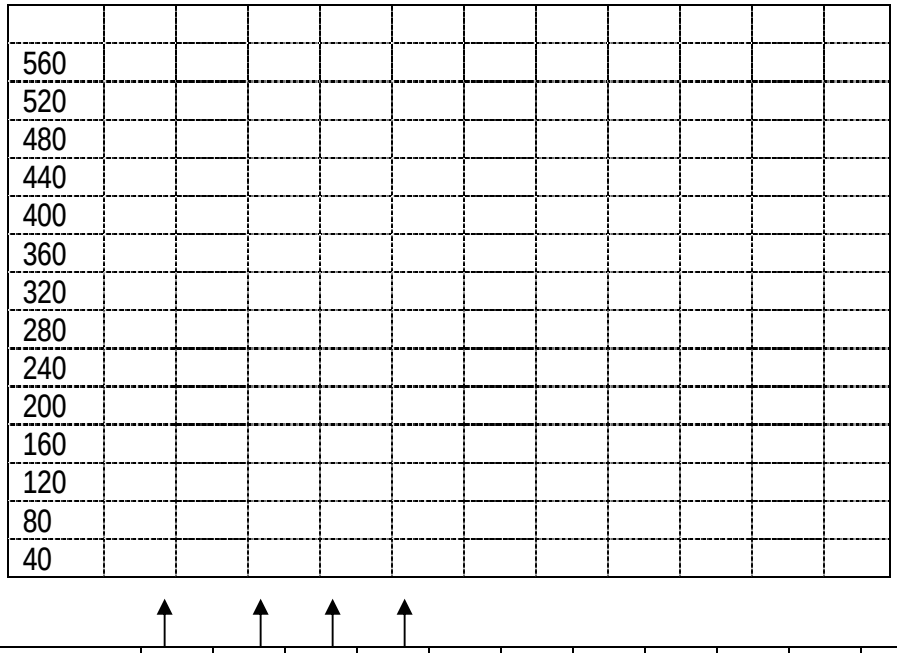
3. Repeat Exercise 1 & 2 for antenatal services, just new cases- and using the guide-questions for exercise No. 2 analyze the situation.
4. Repeat Exercise 1 & 2 for the deliveries attended by the health facility and using the guide-questions for exercise No. 2 analyze the situation.
5. Repeat exercise 1 & 2 for PNC, just new cases – and using the guide-questions for exercise No. 2 analyze the situation.

How to draw a cumulative line graph to show the activities of indicators since the beginning. (e.g., # describes antenatal services for pregnant women).
In the following chart, we can use two lines to compare the actual performance with the planned target.
Step 1. Use the cumulative line chart below and plot the small tables by horizontal lines (horizontal Axis) (months of year).
For the purpose of this exercise, the horizontal axis is usually plotted for 12 months of the year.
Based on the information, you can start from any month except Hamal.
Step 2. Fill out the table located under the graph.
Insert the monthly figures according to the actual performance and the planned target. (Color row number 1 and 3 in gray).
Step 3. Count the accumulated figures based on the planned and actual performance and insert for each month. For the first month, the planned and actual figures are the same. Accumulated figures for the second month are equal to the accumulated figures for the first month. Accumulated figures for the third month are equal to the accumulated figures for the second month, in addition to the monthly actual performance of the second month, and so on.
Step 4. Using a simple line graph, draw a cumulative figure for the actual performance and planned target for each month.

Cumulative line Graph

Facility Name and Code: _____
Period covered: _____ Last updated: _____

Trend Analysis of _____ (name of the indicator)



Monthly target													
Cumulative target													
Monthly performance													
Cumulative performance													

Observation:	
Possible interpretation/causes	Possible intervention

Topic 5: **Stock out rates of essential drugs:**

Source: HMIS, stock management system;
Stock out rates of essential drugs (TMP/SMX, contraceptives, ORS, chloroqouine), average drug consumption per patient treated;
Tabulation/presentation: bar chart (trend analysis);
Analysis: identifying performance gaps; monitoring improvement.

Objective:

- To use the information MIAR, MAAR and records, estimate the average OPD cease of a specific disease, and monthly conception of drugs.
- Find out the average drugs consumption /month /case within the HF.
- To find the number of HPs stock out of essential drugs.
- Using the data to improve the gaps.

Discussion questions:
Which of the following indicators do you think are most useful in monitoring the performance of your health facility? What other indicators (not listed here) do you think would be key in measuring your health facility performance?

Indicator	**Definition & Source**	**How can the data be used?**
Average Co.trimexazol Tab consumption per ENT/Pneumonia >5 patient.	MIAR Stock card	Identify the average Co.trimezazol per ENTA /Pneumonia case /month, assess whether drugs are prescribed rational
Average Chloroquin Tab consumption per Malaria case.	Stock card MIAR: D	Identify the average Chloroquin per Malaria case /month , assess whether drugs are prescribed rational
Average ORS packet consumption per Diarrhea case.	Stock card MIAR	Identify the average ORS Packet per Diarrhea case /month, assess whether drugs are prescribed rational, assess whether drugs are prescribed rational.
Average Oral contraceptive cycle /pill clients.	MIAR, Stock Card ,	Assess whether oral contraceptive are prescribed sufficiently. identify the average Oral Contraceptive pills per pills clients HP.
% Of HP with stock out of Co.trimezazol.	MAAR	Identify the % of HP with stock out of Co.trimexazol , assess stock management,
% Of HP with stock out of Chloroquin .	MAAR	Identify the % of HP with stock out of Chloroquin, assess stock management,

% Of HP with stock out of ORS	MAAR	Identify the % of HP with stock out of ORS , assess stock management,
% Of HP with stock out of Oral contraceptive	MAAR	Identify the % of HP with stock out of oral Contraceptives, assess stock management,
No of stock out days for Cotrimexazol	Stock Card	Assess stock management; identify the stock out of Cotrimexazol.
No of stock out days for Chloroquin	Stock Card	Assess stock management; identify the stock out of Chloroquin.
No of stock out days for ORS	Stock Card	Assess stock management; identify the stock out of ORS.
No of stock out days for Oral contraceptive	Stock Card	Assess stock management; identify the stock out of oral contraceptive

Data for the Exercises

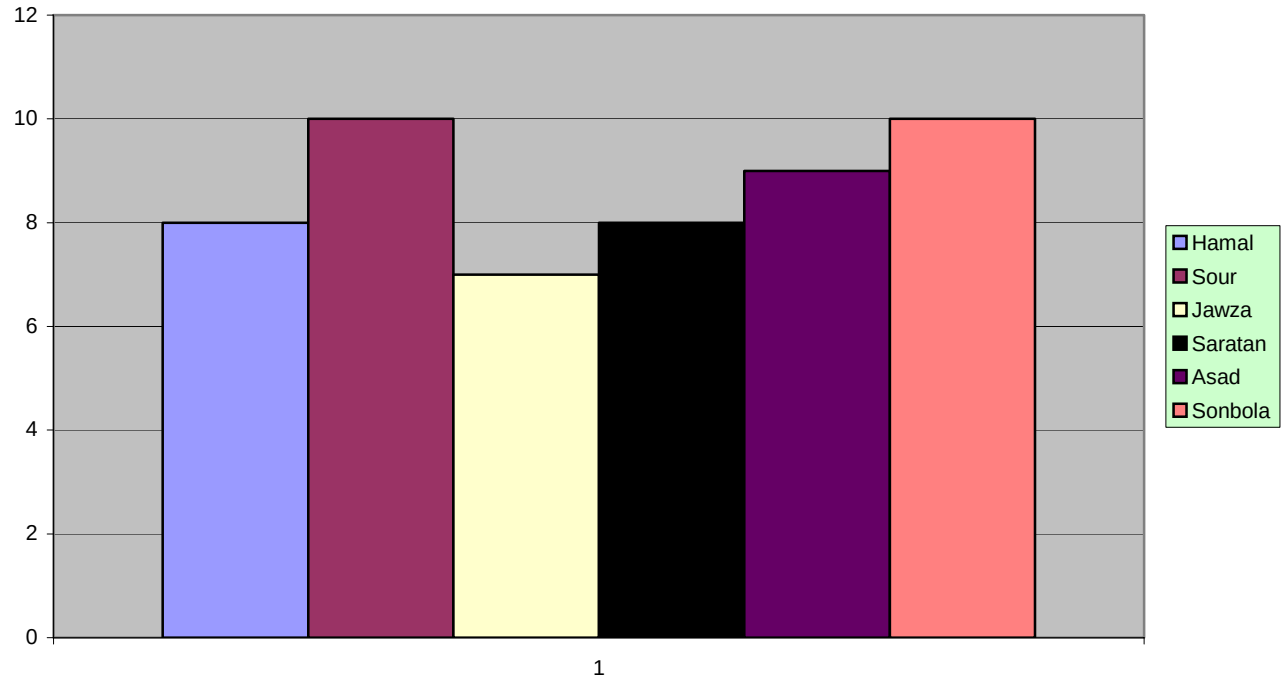
	# Of >5 cases	Hamal	Sour	Jawza	Saratan	Asad	Sunbula
Morbidity Cases (MIAR)	Malaria	6	4	7	14	25	7
	ENT/Pneumania	47	98	118	142	131	161
	Diarrhea	16	42	35	31	25	22
	Pill Client	6	7	3	6	5	7
Drug Consumption (Stock Card)	Chloroquine	50	40	55	120	230	70
	Cotri-moxazole	400	870	1020	120	200	50
	ORS	70	190	155	133	125	80
	Oral Contraceptive	9	11	3	9	5	12
# Days with stock out (Stock Card)	Chloroquine	2	0	3	0	0	0
	Cotri-moxazole	5	0	6	0	0	0
	ORS	0	0	0	3	7	8
	Oral Contraceptive	0	0	0	3	5	5
Stock out of HP (MAAR)	Chloroquine	0	0	5	0	0	0
	Cotri-moxazole	4	3	1	1	2	3
	ORS	1	2	1	3	4	3
	Oral Contraceptive	2	2	1	4	1	3
MAAR	No of health post reported / month	10	10	12	10	11	11

Exercises1: prepare a bar chart showing the average use of Chloroquin per each Malaria case per month, for the last reported 6 months.

- Divide the total Chloroquin consumption of each reported month to total number of Malaria cases of the each reported month.
- Present a bar chart showing report of the last 6 or 12 months

Note: for doing these exercises you will need to have the data available from stock cards of the relevant drugs, MAAR and MIAR of your health facility form the last year or 6 months.
We are using BAR or line graph to show the trend of an indicator,

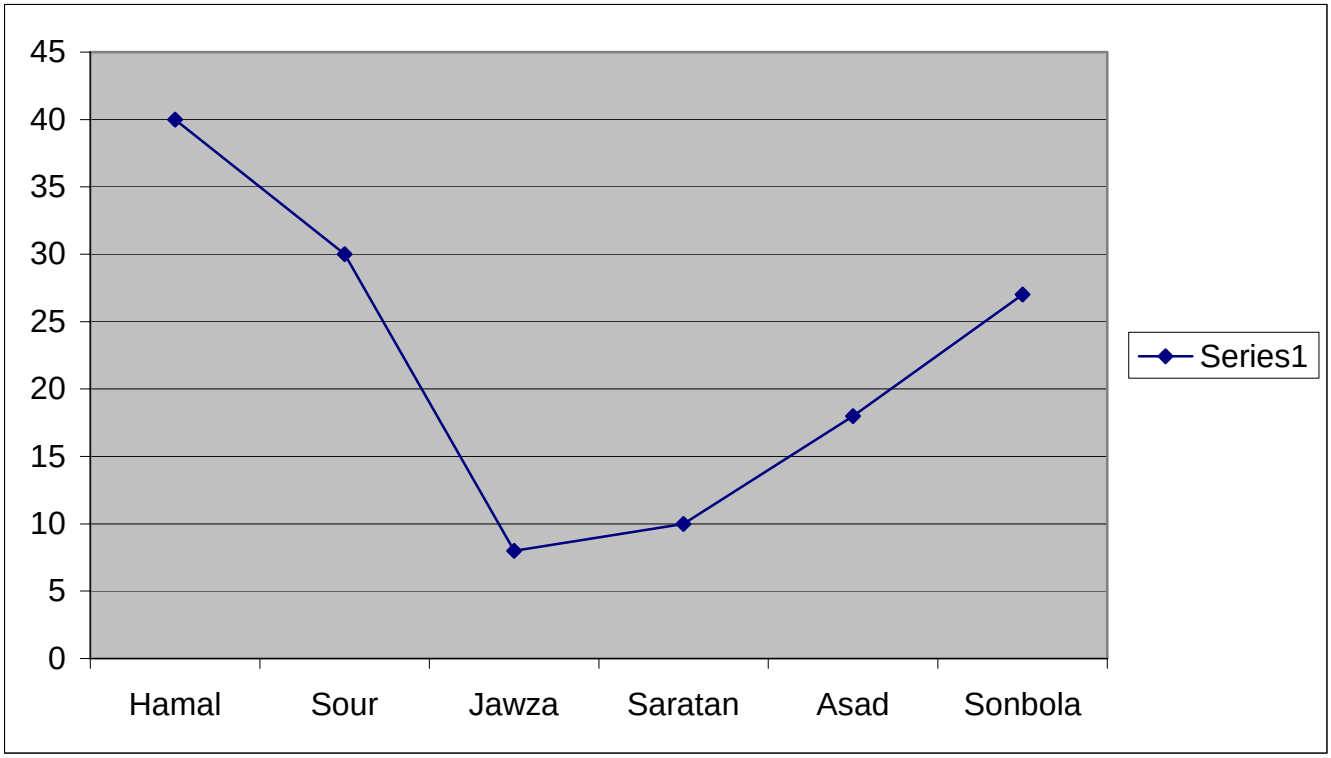
Indicators	Avg use of Chloroquin/Malaria case/month	8	10	7	8	9	10
	Avg use of Cotri/ENT-Pneumonia case / month						
	Avg use of ORS/Diarrhea case / month						
	Avg use of pills/ pill clients / month						
	%of HP with stock out of Choloroquin	line					
	%of HP with stock out of Cotimexazol	40	30	8	10	18	27
	%of HP with stock out of ORS						
	%of HP with stock out of oral contraceptive						



Exercises2: present a line chart showing the percentage of Health posts with stock out of Cotrimexazol for the last reported 6 months.

- Divide the number of the health post reported stock out of Cotrimexazol of each reported month by numbers of report received from health post in the same month and multiply it by 100.
- Present a line chart showing report of the last 6 or 12 months

Note: for doing these exercises you will need to have the data available from stock cards of the relevant drugs, MAAR and MIAR of your health facility form the last year or 6 months.
We are using BAR or line graph to show the trend of an indicator,



Exercises 1: prepare a bar chart for average Co.trimexazol Tab consumption per ENT/pneumonia > 5 case.

Exercises 2: prepare a bar chart for average Chloroquin Tab consumption.

Exercises 3: prepare a bar chart for average Oral contraceptive Tab consumption.

Topic 6: CHW Performance

Source: FFSDP, HMIS; Pictorial Register.

Indicator: Active Shura-e-Sehi; EPI referrals by HPs; breast feeding training by HPs; family planning services provided by HPs; normal delivery referrals by HPs.

Tabulation: MAAR: bar chart (trend analysis)

Analysis: Identifying performance gaps; monitoring improvement.

Needed for the exercise:

- Pictorial register from HPs
- MAR
- Paper, ruler, pen and calculator

Objective:

- Familiarize the HF staff with the roles and activities of CHWs and Community Health Shura
- Strengthening the effective linkage between HFs and community based activities
- Be able to evaluate the performance of HPs for improving provision of health services in the community.
- Be able to find the gaps and addressing them.

Discussion questions:

What do you know about Community Health Shura?
Do you know about the pictorial register tool? What does it contain?
Please explain the composition and role of Shur-e-Sehi

Exercise:

Note: To do this exercise you will need to have the Pictorial Register and MARs of each of your HPs for the last six months. Use the provided template and grids for making line chart to present the following services.

Looking at the pictorial register to determine what information is recorded in this tool.

A. Find the percentage of children who benefited from colostrum:
=total children who received colostrum divided by total live births multiply by 100
   → Do you think this practice is acceptable or you need to do something to change?
   → If you need to change the situation, what interventions should be adopted?

B. Find the percentage of children who have been exclusively breast fed:
= total # of children >1 who have been exclusively breast fed until age of 6 month divide by total # of children >1 multiply by 100
   → Do you think this practice is acceptable or you need to take action to change the situation?
   → If you need to change the situation, what interventions should be adopted?

C. Find the percentage of mother who uses appropriate diet during the pregnancy.
=total mother who uses appropriate diet during the pregnancy divide by the total pregnancies and multiply by 100
   → Do you think this practice is acceptable or you need to do something to change?
   → If you need to change the situation, what interventions should be adopted?

Looking at your MARs to determine what information is recorded in this form.

A. Make a line chart to plot the trend of EPI and normal delivery referrals, and family planning services provided in several of your HPs over the past six months.
   - → How do these trends appear? Decreasing, increasing, constant or fluctuating?
   - → What are the most likely causes of the current trend?
   - → How does the performance of your HPs compare with each other?
   - → Do you think these services are acceptable or you need to do something to change?
   - → If you need to change the situation, what interventions should be adopted?
   - → How you are going to share this information with the CHWs? With the Shura-e-Sehi?

How to Draw a line Graph

Line Graph is used to show the trend of an indicator (e.g. # people served, etc) over time.

Step 1. Using the line chart template below, label the small boxes below the horizontal line (called horizontal axis) to correspond to the months of data that your graph will represent. In this template, the graph can cover a period of 18 months.

Step 2. Now you need to scale the left vertical line (called vertical axis) appropriately and label the marks on it. Depending on the expected values of your indicator, you need to determine a maximum to mark the highest limit of your vertical axis. For example, if you want to plot the trend of woman of reproductive age (WRA) served in your clinic and during the past six month, the maximum monthly value has been 600, choose 720 (i.e. 600 + 20%*600) as the maximum value on the vertical axis. Then, label the vertical axis marks to start at 0 and finish at the maximum (720 in our example).

Note: if the monthly variation of the indicator is expected to be low, instead of starting at 0, you can start at a higher value, but you need to keep this point in mind at the time of interpretation.

Step 3. Plot the value of your indicator from each month (from the sources that you've already identified, for example total woman of reproductive age (WRA) from MAR on the chart. For each month, put a dot on the graph to show the value of the indicator (total woman of reproductive age served from MAR of each month) for each month.

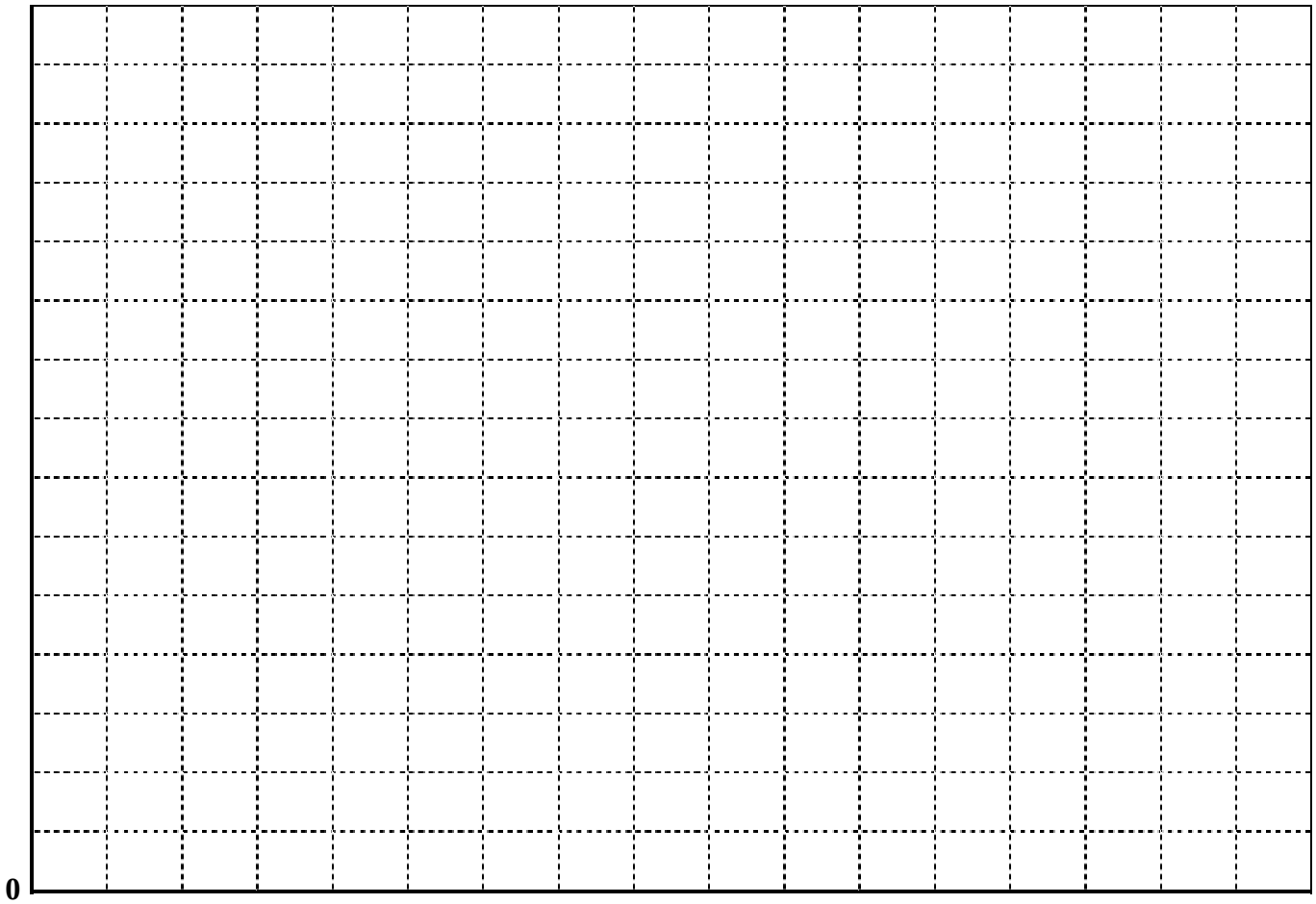
Step 4. Connect all the dots that you have plotted on the graph. This line will show the trend of your selected indicator over the past few months. For the next month(s), you only need to make a new dot showing the new value of your indicator and connect the dot to the previous month. Continue to do the same for each month to monitor the future trend of the indicator and to see whether your interventions have been effective in changing the trend.

Note: You can plot two related indicators in one chart and have two different trend lines in one graph. For instance, you can plot the # woman of reproductive age (WRA) and EPI referrals on the same graph. Plotting more than one trend on one graph (if selected appropriately) can give you additional insight that can facilitate the interpretation of data.

Line Graph

Facility name and code:_____
Period covered: _____ Last updated: _____

Trend Analysis of _____ (name of the indicator)



Observation:

Possible interpretation/ causes	Possible interventions