

Training Course on Data Analysis and Use

A Facilitator's Guide

FHI/ ASHA Project

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Family Health International/Nepal
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Strategic Objective No. 9 & 11

Objective of training:

Overall Objective:

By the end of the course participants will be able to analyze data with focus on project development, program improvement and external presentation / communication of program data

Specific Objectives:

By the end of the course participants will be able to:

- Use step-by-step thinking process in analyzing, planning and presentation of ideas
- Generate strategic questions for data analysis and use different data for different questions
- Analyze and interpret both qualitative and quantitative routine data and generate results
- Select appropriate tools for day-to-day data analysis
- Prepare appropriate graphs, charts and tables with proper title, scaling and label

Course Outline

Day/Time	Session
One	
8:30-9:15	Introduction of the Course and Participants
9:15-10:15	Data Analysis: Reflection
10:30-11:30	Data Analysis for Knowledge Management
11:30-12:30	Fundamentals of Data Analysis
1:30-3:00	Using Mind map for Data Analysis: Introduction
3:15-4:45	Generating Strategic Questions for Data Analysis
4:45-5:00	Day-end Reflection
Two	
8:30-9:00	Day Review
9:00-10:30	Selection of Appropriate Data Analysis Tools
10:45-12:30	Types and Use of Different Graphs and Charts
1:30-3:00	Analyzing and Interpreting Graphs and Charts
3:15-4:45	Improving the Quality of Graphs and Charts
4:45-5:00	Day-end Reflection
Three	
8:30-9:00	Day Review
9:00-10:30	Generating Strategic Information for Organization/Program: Practical 1
10:45-12:30	Generating Strategic Information for Organization/Program: Practical 2
1:30-3:00	Using Data in Making Effective Presentation
3:15-4:00	Using Data in Making Effective Presentation (Contd.)
4:00-4:30	Fine-tuning Knowledge and Skills on Data Analysis and Use
4:30-5:00	Course Review and Evaluation

Day One

Introduction of the Course and Participants

Session Objectives:

By the end of the session participants will be able to:

- Explain the scope of the course and how their expectations fit within the course schedule
- Share their personal and organizational stories regarding the data analysis and use

Total Session Time: 45 minutes

Materials:

- Slides (*Day 1_Session 1_Introduction of the Course*)
- Printed Sheet for Icebreaking Activity
- Blank Template for Expectations Collection

Steps:

1. Explain the objectives, main contents, methods and time of the session **(3 min)**
2. Introduce yourself first and ask participants for their introduction. **(10 min)**
The introduction could be based on:
 - a. Name
 - b. Organization
 - c. Experience in data analysis and using it for the external communication
3. Present training objectives **(Slide 3) (5 min)**
4. Invite participants for 'Icebreaking Activity'. Explain the rule of the activity and distribute the 'Checklist'. Let participants engage in the activity **(10 min)**
5. Once the checklist-based activity is completed, lead a brief reflection discussion (*Refer to suggested guiding questions*) on 'implications of the exercise' on theme of the course i.e. 'Data Analysis and Use' **(5 min)**

6. Explain how sharing personal expectations help the facilitator in addressing their needs as and when possible. Refer participants to a template **(Slide 5)** so that personal ideas are jotted down in a homogenous way. Collect personal expectations through plenary discussion and organize it in a blank Mind map (Sample Map map Template is annexed) so that all participants can feel that they are same especially in terms of personal expectations. **(10 min)**
7. Present overview of the course and highlight how their expectations are going to be addressed during the course **(5 min)**
8. Summarize the key points of the session **(3 min)**

Possible Reflection Questions (for Icebreaking Activity):

- ***Why did you ask for particular information?***
- ***How would you organize that information and how would you use it?***
- ***How is this exercise relevant to the theme of the course 'Data analysis and use'?***

Data Analysis: Reflection

Session Objectives:

By the end of the session participants will be able to:

- Share the areas of their personal/organizational level challenges in data analysis and use
- Jot down areas for possible intervention to maximize the use of available routine data
- Explain how data analysis is a basis for organizational learning

Total Session Time: 60 minutes

Materials:

- Slide (*Day 1_Session 2_Data Analysis Reflection*)
- Set of guiding questions (*Refer to the slide notes*)
- White board
- Temporary markers

Steps:

1. Explain the objectives, main contents, methods and time of the session **(3 min)**
2. Highlight the objectives and journey of the session. Make sure that participants feel secured in sharing their personal and organizational experiences **(5 min)**
3. Show *slide 2* to help them reflect if they think their organization is a learning organization. **(5 min)**
4. Lead a plenary discussion (Use questions from trainer's note on slide 2) and make sure all participants get a chance to share their idea **(40 min)**
5. Wrap up the session highlighting following key points: **(10 min)**
 - a. *Most of the organizations are target focused. It is, however, necessary but not sufficient for an organization to learn from what is being done.*
 - b. *Data analysis is not necessarily a technical job. It is a part of human life and we all are involved in the process even without realizing it.*

- c. Providing brief report to ASHA on regular basis is just one of the activities that your organization should be doing. You must ensure regular data analysis beyond the ASHA requirement so that you can reposition your organization as and when necessary by using valuable information*
- d. We must 'see the whole picture' to internalize the situation better prior to communicating it to others and unless data is analyzed well, we barely can do it.*
- e. Just by shifting our focus and lens while dealing with routine data and other available HIV data we can better advocate and persuade others.*
- f. Organizations need to ensure sound learning environment is in place and regular analysis of available routine data and other data is thus vital.*

Data Analysis for Knowledge Management

Session Objectives:

By the end of the session participants will be able to:

- Explain how Knowledge Management is a key for organizational success
- Describe the principle of Knowledge Management
- Describe the difference between data, information, knowledge and wisdom
- Tell why different level of data analysis effort is needed to generate hierarchy of information for different purpose
- Explain why data, unless processed well and presented without explicit knowledge, may mean different things to different readers/audiences

Total Session Time: 60 minutes

Materials:

- Slides (*Day 1_Session 3_Knowledge Management:Intro*)
- Printed copies of Mind map on Knowledge Management (as a reference material)
- Exercise sheet on 'What's the Knowledge Here?'

Steps:

1. Explain the objectives, main contents, methods and time of the session **(3 min)**
2. Lead a brief discussion on defining 'data', 'information' and 'knowledge' in plenary. Ask participants if they have any example for the differences between those three components. **(5 min)**
3. Present a slide on 'Principle of Knowledge Management' and discuss how the level of abstraction goes higher as it moves from data towards knowledge. **(5 min)**

4. Use slide 3 to demonstrate how data is not information and information is not knowledge in itself. Discuss how tacit knowledge is not very useful for the organization and program unless it is made 'Explicit' (**5 min**)
5. Make groups of participants (not exceeding 6 in each) and hand over a sheet 'What's the knowledge here?' Ask them to discuss as a group and identify the key message in the given text. (**15 min**)
6. Ask group to present what they concluded from the group discussion. Each group present for 5 minutes. (**15 min**)
7. Highlight how different groups came to different conclusions from the same data. Discuss how explaining the key message by the writer themselves could have helped readers to come to understand the same thing. Emphasize that data is never neutral and may mean different things to different people. Review the key points from the session. Highlight how different perspectives of looking at the same thing make a difference. (**5 min**)

Fundamentals of Data Analysis

Session Objectives:

By the end of the session participants will be able to:

- Describe what are data and its types
- Explain why images and symbols are also important types of data
- Explain how routine data is different than other available HIV data and its importance in program communication
- Explain the stages of data analysis
- Explain why generating key question is a fundamental step that determines the scope of data analysis

Total Session Time: 60 minutes

Materials:

- Slides (*Day 1_Session 4_Fundamentals of Data Analysis*)

Steps:

1. Explain the objectives, main contents, methods and time of the session (**5 min**)
2. Make group of participants (maximum 6 participants in a group) and give them task of identifying:
 - a. Data types.
 - b. Differences between routine data and other available HIV data
 - c. stages for data analysis (**20 min**)
3. Ask groups to present to the plenary the data types identified with examples (**20 min**)
4. Present slides 'Key Points to Consider in Data Analysis' and explain how: (**15 min**)
 - a. *Raw data is a relative term. Processed data from one stage may be considered the 'raw data' of the next.*

- b. Statistical computation does not necessarily mean 'data analysis' though it is a necessary task in that respect.*
- c. Data analysis is guided by the key questions that elicit specific answer from the exercise.*
- d. A key question is fundamental for data analysis. Specific the question specific would the answer be.*

Using Mind map for Data Analysis: Introduction

Session Objectives:

By the end of the session participants will be able to:

- Describe the steps of Mind mapping process
- Prepare a Mind map for their case study data

Total Session Time: 90 minutes

Materials:

- Slides (*Day 1_Session 5_Mind map:Intro*)
- Chart papers
- Marker pens
- Crayon colors
- Masking tapes

Steps:

1. Explain the objectives, main contents, methods and time of the session **(3 min)**
2. Lead a discussion on HIV/AIDS and organize key ideas in a Mind map **(10 min)**
3. Reflect on the process and product with brief discussion: **(10 min)**
 - a. What did you notice while taking notes?
 - b. What did you like most of this process?
 - c. How is this process different than conventional note taking method?
 - d. What could be the advantages of using this technique in our day- to-day work?
4. Present slides with sample Mind maps **(5 min)**
5. Explain the rules of Mind mapping process. (Refer Slides 6 &7) **(10 min)**
6. Ask participants to prepare a Mind map for their organizational data and give 30 minutes for individual assignment **(30 min)**
7. Ask 3 participants to present their map and give feedback **(15 minute)**
8. Have a brief discussion to recap the key points from the session **(10 min)**

Generating Strategic Questions for Data Analysis

Session Objectives:

By the end of the session participants will be able to:

- Explain the need of generating key questions in data analysis
- Generate key strategic questions for program improvement
- Generate key strategic questions beyond pre-determined indicators from M&E framework

Total Session Time: 90 minutes

Materials:

- Meta cards
- Marker pens

Steps:

1. Explain the objectives, main contents, methods and time of the session **(3 min)**
2. Start with 'Sinking Boat' game **(10 min)**
3. Lead a reflection discussion **(10 minute)**
 - What was the rule of the game we just played?
 - Who was responsible for giving specific criteria for group making? And what was the implication of such questions to all?
 - How many criteria we came up with in making various size groups?
 - Which criteria was funny and which uncommon?
 - What was a reason for you to ask such questions?
 - What is a key message of the game with regards to the 'Data Analysis and Use'?

Highlight following key points:

- a. Data analysis is about answering key questions*
- b. It is your responsibility to generate key questions so that you get answer for those questions through data analysis*
- c. Specific the questions specific would the answer be*

4. Ask participants to brainstorm (individually) key strategic questions necessary for data analysis in their day to day work. They should focus on the program types they are involved/ associated with. (**15 min**)
5. Form 4-5 groups based on program types i.e. PREVENTION, VCT, MULTIPLE CST SERVICE, NETWORKING,, whatever applicable (**5 min**)
6. Ask group members to share individual questions and write those questions in Meta cards. (**20 min**)
7. Ask them to think what specific data they need to answer those questions (**10 min**)
8. Collect those cards and make clusters of those questions based on certain similarities. Lead a reflection discussion. (**20 min**)

Reflection should focus on:

- which question is beyond pre-determined indicators, and
 - which one is common
9. Summarize the key points of the session (**3 min**)

Special instruction for facilitator:

Prepare 4 sets of unorganized data based on key questions generated for day 2 session 2.

Day-end Reflection

Session Objectives:

By the end of the session participants will be able to:

- Reflect on the things they liked/disliked
- Highlight the areas for improvement in the course (in terms of content, process, logistics etc.)

Total Session Time: 15 minutes

Materials:

- Printed copies of 'Day-end Reflection Form' for all the participants

Steps:

1. Explain the objectives of the session and highlight the importance of their feedback to improve the effectiveness of the course
2. Distribute the forms and describe the terms (if necessary)
3. Give participants 5 minutes to complete the form and collect it

Day Two

Day Review

Session Objectives:

By the end of the session participants will be able to:

- List out key learning from day one
- Explain how their concerns from day one are going to be addressed

Total Session Time: 30 minutes

Materials:

- Key points from day-end reflection organized in map

Steps:

1. Explain the objectives, main contents, methods and time of the session **(3 min)**
2. Form groups of participants and give them instruction to discuss as a group. One group will focus on pre-tea break/ Morning session, second group on pre-lunch break session, third group focus on topic discussed between post-lunch session till second tea break and fourth group focus on post second tea- break session. **(5 min)**
 - a. Ask them to focus on key points discussed, key learning and areas for improvement during the group discussion
3. Groups discuss **(10 min)**
4. Ask groups to present back to the plenary. Anything missed out can be added by other groups **(5 min)**
5. Present key points from day one evening (day end reflection) and how those concerns are addressed/going to be addressed by facilitators/Management Committees **(10 min)**

Selection of Appropriate Data Analysis Tools

Session Objectives:

By the end of the session participants will be able to:

- Describe typical characteristics of descriptive data analysis tools
- Select appropriate tools for day-to-day data analysis and use

Total Session Time: 90 minutes

Materials:

- Slides (*Day 2_Session 2_Selection of Appropriate Data Analysis Tools*)
- Data for group work (based on key questions generated in session 6 of day 1)

Steps:

1. Explain the objectives, main contents, methods and time of the session **(3 min)**
2. Describe what Descriptive data analysis is and highlight features of tools for descriptive data analysis (Use slides 2-7) **(20 min)**
3. Based on key questions generated in session 6 of day 1, give 4 groups of participants each a set of data (unorganized data) and ask them as a group to cluster data and use appropriate tools to analyze it. **(30 min)**
4. Groups present their analysis to the plenary followed by discussion and feedback. Presentation should explain why did they choose the particular tools and what is their group conclusion **(30 min)**
5. Recap the key points of the session with special emphasis on: **(5 min)**
 - a. Descriptive data analysis is very common and most useful analysis in day-to-day work
 - b. Descriptive statistics are typically distinguished from inferential statistics.
 - c. Descriptive Statistics are used to present quantitative descriptions in a manageable form
 - d. Descriptive statistics provide a powerful summary that may enable comparisons across people or other units.

Types and Use of Different Graphs and Charts

Session Objectives:

By the end of the session participants will be able to:

- Explain that graphs and charts can be very useful in communicating message
- Describe typical characteristics of different graphs and charts
- Describe key points to consider in preparing graphs and charts

Total Session Time: 105 minutes

Materials:

- Slides (*Day 2_Session 3_Types and Use of Different Graphs and Charts*)
- Examples of Graphs and Charts

Steps:

1. Explain the objectives, main contents, methods and time of the session **(3 min)**
2. Ask participants to brainstorm individually **(15 min)**
 - a. Differences between graphs, charts and graphics
 - b. Types of graphs and charts
 - c. Typical characteristics of each graph and chart type
3. Make 3 groups of participants and ask them to compile their responses. **(20 min)**
4. Invite groups to present their idea. One group can take maximum 10 min to present their idea. **(30 min)**
5. Organize group idea on the differences between graphs, charts and graphics in template suggested in slide 2 **(10 min)**
6. Use slides to describe typical characteristics of each graphs and charts **(20 min)**
7. Use slide (8-13) to describe key points to consider in preparing graphs and charts **(10 min)**

Analyzing and Interpreting Graphs and Charts

Session Objectives:

By the end of the session participants will be able to:

- Explain that graphs and charts are useful in communicating message
- Analyze and interpret at data in charts, graphs in different ways
- Identify what types of graphs and charts are best in communicating different message

Total Session Time: 90 minutes

Materials:

- Slides (*Day 2_Session 4_ Analyzing & Interpreting Graphs & Charts*)

Steps:

1. Explain the objectives, main contents, methods and time of the session **(3 min)**
2. Make 4 groups of participants and ask them to make graph/chart based on session 2, day 2. **(10 min)**
3. Ask them to work as a group and come out with charts/graphs with key messages of the graphs and charts defined. The groups need to be clear on the possible reasons of preferring particular graphs and charts instead of choosing something else. **(20 min)**
4. Ask groups to present their idea **(20 min)**
5. Lead a reflection discussion following the group presentation **(10 min)**
6. Present slides (No. 6) and highlight what needs to be considered in choosing graphs and charts **(15 min)**
7. Close the session with following key points reinforced: **(10 min)**
 - a. All people are not data friendly especially numerical data. When you are analyzing data you are creating knowledge for your reader/audience.
 - b. While presenting to your audience you may have advantage of presenting key message yourself but while in a written text knowledge must be clearly

presented to your reader I.e. It must be clear what do you want your reader to understand from it.

- c. It is your responsibility to choose appropriate data analyzing tools.
- d. Graphs and charts are meant to support your message stand out
- e. You need to be very much clear about your questions and answer before deciding which graphs and charts to use

Improving the Quality of Graphs and Charts

Session Objectives:

By the end of the session participants will be able to:

- Assess the quality of graphs and charts
- Improve the quality of graphs and charts with proper label, title and scaling

Total Session Time: 90 minutes

Materials:

- 4-5 Set of Graphs and Charts for group exercise (*each set with at least 6 different types of graphs and charts with enough areas for improvement*)

Steps:

1. Explain the objectives, main contents, methods and time of the session **(3 min)**
2. Lead a brief discussion on the qualities of effective graphs and charts **(5 min)**
3. Present couple of graphs to demonstrate how proper labeling, title and scales are important **(5 min)**
4. Make 3 groups of participants for the exercise **(5 min)**
5. Give each group a set of graphs and charts and ask them to improve its quality **(30 min)**
6. Invite groups to present their improved charts and graphs. Ask them to explain what did they change in previous graphs/charts and why. Give each group 10 minutes to present **(30 min)**
7. For each presentation invite other two groups to make comments and feedback with focus on how would they do it differently and why. Give your feedback and comments as well **(15 min)**
8. Summarize the key points of the session **(5 min)**

Day-end Reflection

Session Objectives:

By the end of the session participants will be able to:

- Share best part of the day
- Recall major learning from the day
- Identify the areas for improvement

Total Session Time: 15 minutes

Materials:

- Talking Charts (Each question printed in separate chart paper)

Steps:

1. Explain the objectives of the session and highlight the importance of their feedback to improve the effectiveness of the course
2. Highlight the questions and refer where those questions are posted on the wall
3. Ask them to write their ideas/opinions on the wall before going back to home. (Remind them that those ideas will be shared the next morning as a part of the day review)

Key learning point
for me

.....
.....
.....

Best part of the day
for me was.....

.....
.....
.....

The day would have
been better if....

.....
.....
.....

Day Three

Day Review

Session Objectives:

By the end of the session participants will be able to:

- Recall Have reinforced key learning from Day Two
- Explain how their concerns/comments are going to be addressed

Total Session Time: 30 minutes

Materials:

- Key points from day-end reflection organized

Steps:

1. Explain the objectives, main contents, methods and time of the session **(3 min)**
2. Form groups of participants and give them instructions to discuss. One group will focus on pre-tea break/ Morning session, second group on pre-lunch break session, third group focus on topic discussed between post-lunch sessions till second tea break and forth group focus on post second - tea break session. Ask them to focus on key points discussed, key learning and areas for improvement during the group discussion **(5 min)**
3. Allow groups to discuss **(10 minutes)**
4. Ask groups to present back to the plenary and request other group members to add anything missed out **(5 min)**
5. Present key points from day one evening (day end reflection) and how those concerns are addressed/ going to be addressed by facilitators/Management Committees. This is a time for facilitator to make participants anything discussed in day two clear if required. **(10 min)**

Generating Strategic Information for Organization/Program: Practical 1

Session Objectives:

By the end of the session participants will be able to:

- Use key questions in analyzing given routine data
- Select relevant data and appropriate tools in identifying answer for key questions

Total Session Time: 90 minutes

Materials:

- 4 sets of program specific PIF database for group work
- Laptop computers (with data set installed)

Steps:

1. Explain the objectives, main contents, methods and time of the session **(3 min)**
2. Form program specific groups of participants (4-5 groups). Same members from last session (day two) are better to work together. **(5 min)**
3. Group select 2-3 strategic questions from their list (*Refer to session 5/Day Two*) and use given data to answer those questions. Facilitators should guide them as and when necessary. **(45 min)**
4. Ask the groups to present their findings along with the procedure followed to analyze the data. Presentation should be followed by discussion and feedback **(10 min* 4 groups)**
5. Summarize the key points of the session **(5 min)**

Generating Strategic Information for Organization/Program: Practical 2

Session Objectives:

By the end of the session participants will be able to:

- Analyze routine data for the key questions set out by the facilitating team
- Relate questions to appropriate data from PIF database
- Export PIF data to Excel and create appropriate graphs and charts

Total Session Time: 105 minutes

Materials:

- PIF database
- Computers for group work
- 4 sets of key questions (one set for each program group)

Steps:

1. Explain the objectives, main contents, methods and time of the session **(3 min)**
2. Hand over the set of questions to each group (based on program types) **(5 min)**
3. Ask them to analyze the PIF database and seek answer for those questions. **(50 min)**
4. Present group work to the plenary for further discussion and feedback (10 min* 4 groups) **(40 min)**
5. Reflection on the session **(10 min)**

Group Assignment includes:

- Analyze data for the given set of key questions (20 min)***
- Export analyzed data to Excel and create appropriate charts, graphs with proper scaling, title and labeling (20 min)***

Using Data in Making Effective Presentation

Session Objectives:

By the end of the session participants will be able to:

- Set specific objectives for the presentation
- Prepare appropriate and structured presentation for the audience
- Make proper and logical use of analyzed data during the presentation

Total Session Time: 135 minutes

Materials:

- Slides (*Day 3_session 4_Using data for effective presentation*)
- LCD Projector
- Computers

Steps:

1. Explain the objectives, main contents, methods and time of the session **(3 min)**
2. Use slide (No. 2) to explain how important effective presentation is in imparting knowledge to other program stakeholders **(10 min)**
3. Facilitate a discussion on key aspects of effective presentation. **(20 min)**
4. Use slides (No.3-5) to highlight basics of effective presentation **(30 min)**
5. Ask groups to prepare presentation for 7 minutes (maximum) each. Allow groups to work on the analyzed data from the previous sessions (session 2 and 3 of day 3) **(50 min)**
6. Invite presenter from each group for their presentation followed by peer and facilitators' feedback **(25 min)**
7. Summarize the key points of the session **(5 min)**

Fine-tuning Knowledge and Skills on Data Analysis & Use

Session Objectives:

By the end of the session participants will be able to:

- Answer their concerns on data analysis and use

Total Session Time: 30 minutes

Materials:

- Meta Cards
- Markers

Steps:

1. Explain the objectives, main contents, methods and time of the session **(3 min)**
2. Ask participants to brainstorm individually their questions and concerns either not yet discussed or they are not clear on **(5 min)**
3. Ask them to write their questions on cards and compile all of the concerns and questions based on similarity **(5 min)**
4. Respond to their questions. If something is asked beyond the scope of the training refer them other sources, linkages and web pages to consult **(20 min)**



Course Review and Evaluation

Session Objectives:

By the end of the session participants will be able to:

- Recall the key learning points from the course
- Make action plan to institutionalize key learning from the course to promote their organizational performance
- Identify and share areas for further improvement of such courses to be organized in the future

Total Session Time: 30 minutes

Materials:

- Printed copy of *Training Evaluation Form*
- 'Course Review' slides
- Printed copy of *Action Plan Format*

Steps:

1. Explain the objectives, main contents, methods and time of the session **(3 min)**
2. Facilitate discussion to take participants in a walkthrough of the course and present slides (No.1-4) simultaneously to keep review on track **(15 min)**
3. Distribute action plan format to the participants and ask them to complete it. **(10 min)**
4. Collect completed action plan
5. Distribute training evaluation form and collect completed one **(5 min)**