ANALYZING M&E DATA

CHAPTER AT A GLANCE

- ➤ Details how to process both quantitative and qualitative data
- ➤ Reviews mechanics of data analysis
- ➤ Discusses how to analyze and interpret data to draw conclusions about program design, functioning, outcomes and impact

Processing M&E Data

Processing data refers to the steps needed to organize your data for analysis. This process entails field editing, transcribing, coding, data entry and tabulation and data cleaning, which are each described below. After these five steps, you can move on to data analysis.

Field editing involves reviewing data for completeness and legibility while you are still in the field.
Field editing is the first step in processing qualitative and quantitative data. Field editing involves systematically reviewing field notes; transcripts from focus group discussions, in-depth interviews and observations; and questionnaires.

Data should be reviewed for completeness and legibility while data collectors' memories are still fresh. Reviewing data in the field provides an opportunity to consult the source of the data—facility or a person—in the event that some information is not clear. Field editing also includes the systematic organization of data, recording the date, place and name or other identifier of the informant.

Transcription of qualitative data must be undertaken before data are analyzed.
Transcripts are verbatim records of what was said during a focus group discussion or interview. It is desirable to use a tape recorder to ensure accuracy. If people prefer not to be recorded, have someone take thorough notes. These can then be edited and expanded on while you are still in the field. The transcript will look like a script; it specifies who says what and should also convey notes about gestures or other responses that may not have been recorded on the tape.

Coding refers to a process of organizing and assigning meaning to quantitative and qualitative data.
Data analysis will be simpler if you assign codes to the answers. For example, questions about how much education a young person has completed could have coded responses for each level (e.g., "1=none," "2=primary school," etc.). Most data collection instruments have pre-coded response categories.[1] Use a codebook to

[1] The Comprehensive Youth Survey, Instrument 12, is an example of a pre-coded data collection instrument.

Where Female Newlyweds Say They Seek Treatment for RH Concerns

	1 = Hospital	2 = THC (health complex)	3 = RSDP clinic	4 = Depot holder	5 = Village doctor	6 = *Kabriaj* (traditional healer)	7 = Husband	8 = Sister-in-law	9 = Friends	10 = Mother-in-law	11 = Grandparents
Female discharge			6	5	5	3	6	2		1	
Menstruation problems			3	7	5		5	4			
Safe delivery	6	2	3		1						
Urinary tract infection	1		1	3		1	2	1			
Impotence					4	1		1	2		1
Night emission				1	2	2	1		2		
Tetanus in mother		2	2								
Blood from penis	2				2	1		1	1		
STIs/AIDS	3				1	1					

Note: The higher the number, the more often it was mentioned as a source of treatment.

keep track of how responses to each question have been coded. Add to the codebook as you go along, inserting responses that were not pre-coded by evaluators. All responses, even those handwritten on a structured questionnaire, should be coded and recorded during data entry.

Coding can help organize and interpret descriptive data, such as the answers to open-ended questions about young people's experiences or opinions. After the data are transcribed, each category of response is given a numerical or symbolic code and written in a codebook. When a similar response is found in a subsequent transcript, it is given the same code. For some types of qualitative data collection methods, such as focus groups, transcripts may need to be reduced before they can be coded.

Data will usually be entered into a computer program prior to analysis. When information is collected only from a small number of sites or respondents, it can be tabulated by hand or with a simple spreadsheet program, such as Lotus™ or Excel™. For example, the matrix above was drawn to tabulate results of focus group discussions with female newlyweds in Bangladesh. The left-hand column reflects the reproductive health concerns newlyweds mentioned when asked to free-list their concerns. Each subsequent column reflects answers that were mentioned by at least one respondent in a focus group discussion about where respondents sought

care. The corresponding number reflects the number of focus groups in which this answer was mentioned by at least one participant.[2]

Monitoring data are also often tabulated by hand, using checklists and reports that staff complete, for example, regarding the number of service transactions that took place.

Conversely, most quantitative data is collected from a larger number of respondents and will need to be analyzed with a computer program. Basic spreadsheet programs may be sufficient for smaller data sets. More complex programs, such as *Epi-Info* or *Statistical Package for the Social Sciences (SPSS),* may be needed for larger, more complex data sets. When using computer programs to analyze data, data entry is often time-consuming; for larger evaluations, you may choose to hire outsiders to enter data.

Data cleaning is an essential step. Data cleaning refers to checking for and correcting errors in data entry. Some software packages have built-in systems that check for data entry errors, such as inconsistencies between data items, data omissions and values entered that are out of the range possible. These systems can significantly reduce the amount of time you spend cleaning data.

To check for data entry errors, you should periodically take a sample of data collection instruments and check to see if they are entered correctly. The most rigorous way to eliminate data entry errors is to enter the data twice, then compare the two sets of data item by item. If it is not feasible to do this for all data, than apply this procedure to a sample of cases.

[2] Unpublished analysis by Irit Houvras, Assessment of the Pathfinder Bangladesh Newlywed Strategy, August 1999.

Types of Errors to Be Considered in Data Cleaning

Missing data: Missing data is the result of a respondent declining to answer a question, a data collector failing to ask or record a respondent's answer or a data entry staff member skipping the entry of a response.

Inconsistent data: Within one person's survey, responses are sometimes not consistent. For example, a respondent might say that he had never had sex and then report that he had two sexual partners. The problem should be reconciled by referring to the original questionnaire, if possible. If the respondent's answers are indeed inconsistent, develop a rule about which response to accept.

Out-of-range values: Some data items may be impossible or implausible. For example, "35" is recorded for a 15-year-old female to the question, "How many times have you been pregnant?" Refer to the original survey. If the respondent did give an impossible or implausible answer, you can code the response "no number."

Analyzing M&E Data

Once data are collected and prepared, they can be analyzed. Data analysis will enable you to assess whether and how your program has achieved both program-level and population-level objectives.

In baseline surveys, analysis can reveal:

- participants' characteristics in terms of gender, age, marital status, schooling status, residence and other important attributes; and
- the frequency of specific behaviors and risk and protective factors.

In monitoring and process evaluations, analysis can reveal:

- program quality, coverage and exposure;
- program functions.

In outcome and impact evaluations, analysis can reveal:

- if and how the program achieved its intended results; and
- what portion of the changes in outcome indicators your program can take credit for.

Analysis of data will also enable you to make the following comparisons:

- actual results versus program targets,
- actual progress to projected time frame
- results across program sites, and
- program outcomes versus control or comparison group outcomes.

Analyzing data will enable you to assess whether and how your program has achieved its objectives.

Analyzing Qualitative Data

Some *qualitative data* that you collect will not be coded into numbers and tabulated, but, rather, coded as categories and presented as a narrative or in other forms. You will want to systematically review these data to identify patterns and explore ideas to explain or interpret those patterns. This type of analysis should reflect the original objectives of the program, as well as the evaluation questions posed.

You can present this data in a number of ways:

- *Case studies* are based on transcripts of respondents' narratives. They present one person's interpretation of a program, permitting an in-depth understanding. "Cases" can be individuals, organizations, programs or groups.
- *Process analysis* depicts visually, and with narrative description, a program's processes, or stages of implementation, and how these are linked to outcomes. Process analyses are often presented as flow charts or other graphics, and illustrate how youth programs function and what types of action are required to bring programs about.
- *Causal flow charts* depict sequences of events, revealing how things work or how processes occur by representing actions and events with boxes, circles and arrows. A causal flow chart can be included as part of a process analysis, or can be used to explain how people interpret cause and effect. Another form of causal flow chart that is useful to a youth program is a *decision-tree model,* which graphically outlines the realm of choices and priorities that go into youth's decisions.
- A *taxonomy* is a visual representation or diagram developed by an evaluator to illustrate how respondents relate categories of language and meaning. For example, after collecting data from youth about their reproductive health problems, an evaluator would draw a diagram that illustrates the terms youth use to describe their anatomy and how they understand the link between reproductive health problems and the causes. This taxonomy could be used to assess youth's understanding of reproductive health problems before and after participating in a program, or to compare participants' knowledge with that of non-participants.

Analyzing Quantitative Data

Analysis of *quantitative data* involves further mathematical calculation to produce statistics about the tabulated data. While many want to avoid complicated statistics, much of the analysis done in the typical monitoring and evaluation effort is in fact quite straightforward and involves common sense. This section discusses two types of statistics: *descriptive statistics* and *inferential statistics*.

Calculating descriptive statistics is the first step in data analysis.
Descriptive statistics are used to describe the general characteristics of a set of data. Descriptive statistics include frequencies, counts, averages and percentages. You can use these methods to analyze data from monitoring, process evaluation, outcome evaluation and impact evaluation that have been quantified.

A *frequency* states a univariate (single variable) number of observations or occurrences. For example, when you say that 37 youth of the 242 interviewed have completed the eighth grade, you are stating a frequency. When the frequencies related to a single variable are listed together, this is referred to as a *frequency distribution* (e.g., you may find of the 242 youth interviewed, 37 completed the eighth grade, 148 completed the ninth grade and 57 completed the tenth grade). You can further tabulate data related to more than one variable. For example, you might find that of the 37 youth who completed the eighth grade, 10 are girls and 17 are boys. This is referred to as a *bivariate* or *multivariate* (two or more variables) frequency distribution. Bivariate and multivariate frequencies can be cross-classified and presented in a table. This display of labeled rows and columns is a *cross-tabulation.*

Frequency Distribution of Highest Level of Education Completed by Out-of-School Youth

Grade Completed	Frequency	Percent
Grade 8	15	10.0
Grade 9	40	26.7
Grade 10	65	43.3
Grade 11	20	13.3
Grade 12	10	6.6
Total	**150**	**100.0**

Percentages are calculated by dividing the frequency in one category by the total number of observations, then multiplying by 100.

Descriptive statistics can be used to identify patterns in the data by certain characteristics.
The box above shows an analysis of data collected during a process evaluation conducted at a job training course for young people. It shows both frequency and percent distributions of the highest level of education completed by the 150 youth who attended the training. Of the youth observed (150), the percent that completed Grade 8 is equal to 15 divided by 150 (x 100), or 10 percent. This table tells us that of 150 youth, 120 (80 percent) had completed Grade 10 or less. From this analysis, evaluators found that the training seemed to attract youth who left school after completing Grade 10. This information can be used by program managers to adjust the content of the training so that it best meets the needs of their clients.

By doing further analysis that included a second variable in the table, evaluators learned even more about the youth attending the training. The box on page 136 shows the percent distributions for the highest level of education completed by 150 youth, separated by gender.

Percent of Out-of-School Females and Males by Highest Grade Completed

Grade Completed	Gender		
	Females (percent)	Males (percent)	Total (percent)
Grade 8	12.9	7.1	10.0
Grade 9	31.4	21.4	26.7
Grade 10	42.9	44.3	43.3
Grade 11	10.0	17.1	13.3
Grade 12	2.9	10.0	6.6
Total	**100.0**	**100.0**	**100.0**

Looking at this cross-tabulation, we can see that a higher percentage of girls left school after completing lower grades than did boys. In this case, we have calculated the percentages down the columns, providing information about the distribution for each gender. If we had calculated the percentages across the rows, we would learn for each grade what percent of those who left school were girls versus boys.

To analyze data that have been presented as descriptive statistics, look for patterns in the data that apply to most or all categories of a characteristic being considered, not just one or two. You don't need to observe every item of information; for example, it is unnecessary to state the proportions of males and females falling into each and every educational level—an overall summary of gender differences will usually suffice. Look for dominant patterns or trends by certain characteristics. For example, you might find that program dropout increases as youth get older, or that less-educated youth are more likely to attend a program.

Calculating inferential statistics is the next step in data analysis.
Inferential statistics allow the evaluator to make inferences about the population from which the sample data were drawn, based on probabilities. Inferential statistics are grounded in the concept of probability, or the likelihood of an event occurring. They rely on *statistical significance,* or a way of "giving odds for or against the probability that something happened strictly by chance."[3] Testing for statistical significance helps ensure that differences observed in data, however small or large, were not due to chance.

For example, suppose that descriptive statistics found that the proportion of youth who used condoms the last time they had intercourse was greater in program schools than in control group schools: 45 percent condom use during last intercourse was reported in program schools versus 35 percent in control schools. You should question whether this is a "real" difference, or whether it could be the result of random measurement error.

To answer this question, you could conduct a statistical test to tell you how likely it would be to observe a difference of this size by random chance alone. Suppose that the statistical test indicated that this difference was significant at the 95-percent level of confidence. This would mean that the likelihood of this difference being due to random chance is only 5 out of 100. Thus, you could conclude with a high degree of confidence that condom use in your program schools was higher than in control schools.

Statistics textbooks can provide you with the information you need to conduct such statistical tests. If a member of your staff has received training in statistics, he or she will likely be able to perform basic statistical tests. If needed, you should be able to find help from faculty at local universities. Other methods used to begin the analysis of your

[3] Krause, 1996.

Methods for Analyzing Quantitative Data					
Processing Method	**What You Do to the Data**	**Where the Data Come From**	**How You Get the Information**	**How the Information Is Presented**	**What You Can Do with the Information**
Tabulating	Add items in columns of register or in survey response	Client records, registers or surveys	Take totals and percentages for each item for a given time period	Tables, bar graphs or pie charts	Compare different members of the same category, such as new clients and continuing users, or users of different contraceptives
Cross-tabulating	Choose two data items to see how they are related	Client records, registers or surveys	Break down items in relation to another item	Two-by-two tables in which one item is the independent variable and the other is the dependent variable	Compare different categories of data, such as age of user and method used
Aggregating	Add individual units for overall picture of area	Totals from sites, clinics or providers	Take totals on different times from each unit and add together to get totals for larger area	Tables, bar graphs or pie charts	Compare total situation with program targets
Disaggregating	Break down total situation into units	Summary forms	Take subtotals of items for specific sub-groups of the population	Tables, bar graphs or pie charts	Examine differences between sub-groups based on age, gender or location
Projecting	Forecast how indicators will change over time	Client records, registers or inventory forms	Calculate rates of change in items during a past period, and examine impact of rates over time period in the future	Bar or line graphs	Predict what project outcomes will be if the situation remains unchanged or if rates are changed

Adapted from Wolff et al., 1991.

data include *aggregation, disaggregation* and *projecting,* each of which is explained in the box above.

Once you have determined the appropriate method of analysis, you can begin to consider how your analysis will inform your program at each stage: design, process and outcome/impact.

Analyzing Baseline Data for Program Design

Analysis of baseline data allows us to understand characteristics of our population, identify behaviors and antecedents and determine program coverage and exposure. These issues are all important in understanding whether a program is achieving its population objectives, and in assessing program outcomes and impact. To illustrate, we present data from a baseline survey conducted in Lusaka, Zambia.

FOCUS on Young Adults, at the request of the Lusaka District Health Management Team, the Central Board of Health, and USAID and its partners, conducted a baseline community survey. The survey was designed to serve as a foundation by which to monitor and evaluate the joint implementation of "youth-friendly" clinic services in urban and peri-urban Lusaka. Data were collected on the basis of personal interviews from a total of 2,500 youth who were randomly selected from four treatment and control groups.

The first step in analysis was to calculate descriptive statistics to show the multivariate frequencies of specific behaviors, by other characteristics (see the box below).

The second step was to calculate inferential statistics to determine the antecedents of specific behaviors. We had designed the survey instrument to look at the social influences on the age a young person has sex for the first time. We produced

Distribution of Adolescents by Age, Sex and Illustrative Characteristics

Characteristics		M 10–14		F 10–14		M 15–19		F 15–19		M 20–24		F 20–24	
		#	%	#	%	#	%	#	%	#	%	#	%
Use condom	Yes	3	12.0	6	26.1	94	35.2	64	28.2	156	43.2	104	27.5
	No	23	88.0	17	73.9	173	64.8	163	71.8	205	56.8	274	72.5
	Total	**26**	**100.0**	**23**	**100.0**	**267**	**100.0**	**227**	**100.0**	**361**	**100.0**	**378**	**100.0**
Last sexual partner	Fiancé / husband	2	8.0	1	4.5	11	4.3	88	39.8	93	26.3	207	55.8
	Boyfriend/ girlfriend	14	56.0	16	72.7	220	84.9	128	57.9	239	67.5	148	39.9
	Other	9	36.0	5	22.8	28	10.8	5	2.3	22	6.2	16	4.3
	Total	**25**	**100.0**	**22**	**100.0**	**259**	**100.0**	**221**	**100.0**	**354**	**100.0**	**371**	**100.0**
Age of last sexual partner	14 or less	15	75.0	2	11.1	44	18.6	0	0	3	0.9	1	0.3
	15–19	5	25.0	13	72.2	177	74.7	51	26.0	192	58.4	5	1.4
	20 or greater	0	0	3	16.7	16	6.7	145	74.0	134	40.7	344	98.3
	Total	**20**	**100.0**	**18**	**100.0**	**237**	**100.0**	**196**	**100.0**	**329**	**100.0**	**350**	**100.0**
Can easily buy condom	Agree	78	29.8	71	28.7	302	69.1	286	60.9	313	75.6	313	71.6
	Disagree	32	12.2	20	8.1	81	18.5	66	14.0	75	18.1	62	14.2
	Don't know	152	58.0	156	63.2	54	12.4	118	25.1	26	6.3	62	14.2
	Total	**262**	**100.0**	**247**	**100.0**	**437**	**100.0**	**470**	**100.0**	**414**	**100.0**	**437**	**100.0**

inferential statistics that compared differences in age at first sex. We found that the majority of young people who had had sexual intercourse had also smoked, drank alcohol, used drugs and earned money in the last month. Further, they knew someone their own age who had sex, and spent most of their free time going out with friends. The majority did not attend school, did not live with both parents and did not think that they could talk with their parents. The table below overviews these influences.

[4] See Chapter 3 for a discussion of setting targets.

Analyzing Data Related to Program-Level Objectives

To measure program objectives, data are collected during monitoring and process evaluations to shed light on the design, systems and program functioning and implementation of a program.

Comparing results to the targets you initially set is a way to assess your program's implementation.[4]

This is perhaps the most straightforward way of assessing whether your program is being implemented as planned. The box at the top of page 140 provides a comparison of results to targets that have been expressed as indicators.

Inferential Statistics Identifying the Antecedents of Sexual Intercourse in Lusaka, Zambia

Characteristics			% Who Have Had Sex*	No. of Respondents	Odds Ratio**
Individual Characteristics	Ever smoked	Yes	83.1	348	6.8
		No	41.8	1,560	1.0
	Ever drank alcohol	Yes	75.8	807	7.4
		No	29.8	1,100	1.0
	Age group when first drank alcohol	10–15	71.2	379	0.6
		16–24	80.1	401	1.0
	Ever used drugs	Yes	89.8	177	10.7
		No	45.1	1,729	1.0
	Earned money during last month	Something	77.3	428	4.9
		Nothing	41.3	1,474	1.0
Peer Characteristics	Knows someone of same age who has had sex	Yes	70.9	1,261	39.3
		No	5.8	600	1.0
	Spends time with close friend drinking alcohol	Yes	80.1	146	4.6
		No	47.0	1,666	1.0
	Spends time with close friend going to disco/concert	Yes	64.6	181	2.0
		No	48.0	1,631	1.0
	Spends time with close friend going to movies	Yes	60.4	101	1.6
		No	49.0	1,711	1.0
	Spends time with close friend going to parties	Yes	67.4	224	2.3
		No	47.2	1,588	1.0
	Spends time with close friend watching TV/video	Yes	49.1	432	1.0
		No	49.9	1,380	1.0
Social & Family Influences	Attends school	Yes	31.7	1,023	0.2
		No	71.8	794	1.0
	Lives with father or mother	Both	38.2	814	1.0
		Father	50.7	69	1.7
		Mother	50.4	262	1.6
		Other	60.7	763	2.5
	Father likes talking with you	Yes	39.8	699	0.5
		No	54.8	1,209	1.0

* The figures in this column refer to the percentage of young people in each category of the variable or characteristic in question that reported having had sex. As such, they do not add up to 100 percent.

** The odds ratio indicates the likelihood of an event occurring. The higher the number, the more likely something is to have occurred. For example, of youth who answered "Yes" to the question "Father likes talking to you," there is an odds ratio of 0.5 related to them ever having had sex. This means that youth who answered "Yes" to this question were only 50 percent as likely to have had sex than youth answering "No." Odds ratios can illustrate associations between two factors, such as a father talking to a young person being associated with a decreased likelihood of sexual activity.

Comparing Results to Program Targets

Indicator	Target	Data Source	Actual Performance	Percent of Target Achieved	Action to Be Taken
Management plan written, approved and disseminated	Dissemination by end of first program quarter	Checklist	Disseminated by end of first program quarter	Completed as planned	None
Number of advocacy workshops conducted	Six by end of third program quarter	Service statistics	Four by end of third program quarter	67%	Assign higher staff priority to completing workshops
Number of training courses for service providers conducted	22 providers (2 per facility) trained by end of third program quarter	Service statistics	20 providers trained by end of third program quarter	91%	Schedule training for remaining service providers
Number of service visits by young adults	500 in program year 1	Services statistics	600 in program year 1	120%	None

Adapted from Franco et al., 1993.

You can assess program objectives related to quality and coverage by comparing results to the baseline data.[5]

This can help you assess the quality and coverage of your program. Indicators showing quality and coverage might include knowledge and skill levels of program staff, staff service delivery performance, client satisfaction and program dropout rates. The box at the top of page 141 illustrates how data can be compared to baseline data to measure the quality and coverage of a training workshop.

Combine monitoring data and qualitative data to assess program functioning and processes at any stage of the program.

This type of analysis will tell you how your program is functioning and if and how it is achieving its results. To illustrate how qualitative data can be analyzed and presented in youth program evaluations, we draw on an example from Bangladesh.

In June 1999, FOCUS worked with the Bangladesh Rural Advancement Committee (BRAC) and the Rural Service Delivery Program to conduct an assessment of their Adolescent Family Life Education (AFLE) program. This program provided informal primary education and reproductive health education to poor children (ages 11–15) from landless families. It also featured community mobilization and social action, family life education and referral to clinical services. The assessment reviewed sites at different stages of implementation to find out how the program functioned, to determine whether it was reaching its desired outcomes and to make recommendations on how to expand the program to other areas. One of the key challenges of the evaluation was to use a qualitative approach to describe and capture the process of community involvement and social change.

The evaluators, with the collaboration of BRAC Headquarters in Dhaka, used the framework on the bottom of the next page to identify how program objectives would be measured. (See Table on bottom of p. 141.)

[5] See Chapter 3 for a discussion of baseline data.

Evaluation of a Training Workshop				
Indicator	**Target**	**Data Collection Method**	**Actual Performance**	**Action to Be Taken**
Percent of participants who match specified characteristics	90% of participants should match specified characteristics	• Participant survey	50% of participants match specified characteristics	Improve participant recruitment and screening system
Average quality score given by participants	Average quality score given by participants should be greater than 3 on 5-point scale	• Participant questionnaire • Focus group discussion with sample of participants	Average quality score given by participants is 3.7	Use focus group results to improve quality of training
Percent of learning objectives achieved	100% of learning objectives are achieved	• Checklist analyzing workshop content • Participant pre- and posttest measuring knowledge	• All content was covered in workshop • Participant knowledge increases by 10%	Look at areas where participant knowledge is still lacking and modify curricula accordingly

Adapted from Brinkerhoff et al., 1983.

Framework for Assessment of BRAC AFLE Program Objectives				
Program Objectives	**Key Indicators**	**Methods**	**Data Sources**	**Analysis**
• Identify and map social structures • Build trust with the community • Engage community in dialogue about the AFLE program	• Who participates in program and their level of participation • Number of mapping activities conducted and groups identified • Number of group discussions held, number and type of participants, and content and substance of discussion • Trust built • Substantive concerns raised by community • Ideas generated by community • Problems discussed and solutions generated	• Review project documents and monitoring records • Social mapping • Venn diagram • Interviews • Group discussions	• Project documents • MIS • Community leaders • Parents • Management committee	• Descriptive statistics of MIS data • Descriptive accounts from qualitative data • Assessment team discussion of findings and agreement on meanings and implications

Evaluators collected data in each of the program's four districts. First, they listed all 175 schools and 39 *pathogar* (library) sites in a sampling frame, noting which were in the first phase of implementation and which were in the second phase. They then selected a total of two communities with *pathogars* and four communities with current schools, half of which were in Phase I and half in Phase II.

They conducted interviews with other key informants in the community, including program staff (e.g., teachers, program organizers), members of the management committee, community leaders and parents. After transcribing, translating, coding and tabulation, evaluators analyzed the material. Findings are presented in the box below.

Analysis of Findings: Program Objectives of the Social Action Strategy of the BRAC AFLE Program

Identification and mapping of social structures: A review of program documents showed that BRAC staff had previously conducted a survey to identify which eligible children were not currently enrolled in primary school. They also met with elected leaders, religious leaders, government school teachers, community leaders and parents to map adult social groups in the community.

Building trust with the community: Records also showed that BRAC staff sought to build trust with the community before establishing the school by holding informational meetings. Community members were also invited to recommend locations for building the school. Social mapping and Venn diagrams revealed that the way BRAC maintains trust with the community is through a school management committee (5–7 parents, community leaders and the school teacher). In-depth interviews with these community members revealed that the AFLE curriculum was first introduced to the management committee for approval. Most members of the management committee were familiar with the program and could list some of the topics covered in the curriculum.

MIS data confirmed that this committee holds monthly parents' meetings. In most areas, the general topics of the AFLE curriculum had been presented to parents during community forums, which parents reported gave them a positive impression of the school and reduced their resistance to teaching children about reproductive health.

In-depth interviews with BRAC staff revealed that in sites where community leaders or parents were concerned about the AFLE curriculum content, the program organizer and teacher met with those individuals informally to discuss their concerns. A written one-page explanation of the program was used by the program organizers to help them explain the need for the AFLE program to the community.

Interviews also revealed that Moslem religious leaders' advocacy for the program built community trust. One mosque leader said that he had answered parental concerns about the AFLE curriculum. "We made clear to the community that if there was anything against our religion [in the curriculum], we would omit those things, as we do not need them. After going through the curriculum, we found nothing anti-religious; rather, the content was useful and acceptable for the boys and girls. [The BRAC] school is doing very praiseworthy work for our community."

Engaging community in dialogue about the AFLE program: MIS data documented that BRAC facilitated community forums during men's meetings, religious meetings, parents' meetings and newlywed couple meetings. Special forums on the AFLE curriculum, held with students, parents' groups and the school management committee, discussed the efforts to create new social norms supportive of adolescent health. Field interviews with parents confirmed that these meetings took place.

The MIS data indicate the number and types of AFLE sessions held between September 1998 and April 1999. A total of 1,174 sessions were held for students, or 90 percent of those planned. There was also an average of one discussion with parents per school or pathogar, and 90 percent of the schools held meetings. After MIS data were compared by district, it was found that the number of parent meetings held compared to the number planned varied quite a bit, as did the attendance by parents in each site.

	% of Planned Meetings Held	Average No. of Parents/Meeting
Site I:	75%	26 parents
Site II:	97%	23 parents
Site III:	114%	26 parents
Site IV:	51%	15 parents

Comparing Indicators Related to Population Objectives Over Time

Indicator	Data Source	Baseline Value	Follow-up Value	Change in Indicator	Statistical Significance of Change*
Total number of service visits to program facilities by youth	Service statistics	1550	4,000	2,550	(Not applicable)
Proportion of youth who rate program services as "high quality"	Exit interviews, client surveys and focus groups	30%	55%	25%	Significant at 95% level of confidence
Proportion of youth who receive HIV workshop who know the primary ways that HIV is transmitted	Pre- and posttest survey of youth who receive HIV workshop	70%	90%	20%	Not significant at 95% level of confidence
Proportion of youth who use a condom at first intercourse	Population-based survey	50%	60%	10%	Significant at 95% level of confidence
Mean number of sexual partners, last 12 months	Population-based survey	2.4	1.6	0.8	Significant at 95% level of confidence

*The level of statistical significance indicates the probability or likelihood that an observed difference is larger than what would be expected to have occured by chance.

Comparing changes in indicators over time is a way to measure program outcomes.

The following are examples of indicators related to population objectives that could be assessed over time:

- 50-percent increase in the number of youth who use your program's services;
- 30-percent increase in the proportion of youth who rate program services as "high quality";
- 15-percent increase in the proportion of youth who know the primary ways that HIV is transmitted; or
- 10-percent increase in the proportion of youth who use a condom at first intercourse.

The box above illustrates how changes in indicators can be compared over time to assess population objectives.

Comparing evaluation results across sites can alert you to problems, as well as excellence in performance.

This type of analysis will not provide all of the information you need to take necessary corrective action, but it will at least call your attention to sites requiring supervisory attention. In the example in the table below, the data show that Site A is not as far

Analysis of Performance Among Program Sites

Indicator	Data Collection Method	Site A	Site B	Site C	Site D
Percent of target number of peer educators recruited and trained	Service statistics	56%	93%	89%	90%
Percent of peer educators who meet performance criteria	Mystery client	56%	93%	89%	90%
Average number of contacts per peer educator	Service statistics	8	29	11	21
Percent of target audience knowledgeable about how HIV is transmitted	Population survey	43%	70%	51%	59%

Comparing Outcomes with a Control Group				
Indicator	**Treatment Group**	**Control Group**	**Difference (Treatment–Control)**	**Statistical Significance of Difference**
Percent of target audience knowledgeable about how HIV is transmitted	75%	70%	5%	Not significant at 95% level of confidence
Percent of target audience that believe they could obtain a condom if needed	90%	75%	15%	Significant at 95% level of confidence
Percent of young adults that feel comfortable using health services	60%	30%	30%	Significant at 99% level of confidence
Percent of young adults using condom at last intercourse	45%	50%	10%	Not significant at 95% level of confidence

along in program implementation, which may explain the lower levels of knowledge about HIV transmission in the target population. Site B seems to be performing well and producing changes in knowledge about HIV transmission in its target audience. Site C has done well in recruiting and training peer educators, but the number of contacts per peer educator is much lower than at other sites (except Site A). Site D shows good program performance, but the level of knowledge about HIV transmission in the target population is still low.

Comparing changes in indicators with a control or comparison group is another way of measuring impact.[6]
Although control groups are generally used to measure program impact on behavior-related outcomes, they may also be used to answer other types of evaluation questions. For example, if a program objective is to increase the use of reproductive health services among youth, trends in the number of youth who receive services at different health facilities over time can be tracked and compared to service statistics in areas not targeted by your program.

Comparing outcomes with a control group to illustrate impact can be relatively simple.
The box above illustrates an analysis of control group data using a randomized experiment.[7] Data would be collected for each of these indicators, through a survey of the target population.

Comparing outcomes with comparison groups using other study designs can be more complicated.
However, because other study designs do not randomly assign respondents to treatment and control groups, it is necessary to take into account the fact that the groups may differ on factors other than exposure to the intervention. This can be done by applying statistical methods to compensate for possible differences between the groups. The purpose of statistically controlling for differences is to answer the question, "Was the change in indicators for the treatment group significantly larger than that for the control group, after differences between experimental groups on these other factors have been taken into account?"

[6] Control groups are discussed in Chapter 5, along with some of the more commonly used study designs for measuring program impact.
[7] Randomized experiments are discussed in Chapter 5.

It is beyond the scope of this Guide to fully describe statistical procedures. Many statistical textbooks are available to help you select appropriate procedures. Readers are referred in particular to the *Handbook for Family Planning Operations Research Design* (second edition) by Fisher et al. (1991) and *Evaluating Family Planning Programs* by Bertrand et al. (1996), listed in the Reference Shelf (Appendix 3) of this Guide, for details about relevant types of analytic procedures for different study designs. These sources present the analytic procedures in easy-to-understand language. You might also consider hiring a consultant to perform the statistical analysis of your data.

Worksheet 8.1 Compare Actual Performance with a Target or Standard				
Indicator	**Actual Performance**	**Standard or Target for Performance**	**Percent of Standard or Target Achieved**	**Action to Be Taken**

Worksheet 8.2
Analyze Changes in Program Indicators Over Time

Indicator	Baseline Value	Follow-up Value	Change in Indicator	Statistical Significance of Difference

Worksheet 8.3
Compare Performances Among Program Sites

Indicator	Site A	Site B	Site C	Site D	Site E	Follow-up Action Required