


**Community-Led
Monitoring** of HIV, TB
and Malaria Services
in the Context
of COVID-19

Data Analysis Methods in Community- Led Monitoring

A stylized lightbulb graphic with a magnifying glass effect over the text. The lightbulb is composed of several concentric circles and a base, all rendered in a dark red color. The magnifying glass effect is created by a larger circle surrounding the text, with a smaller circle inside it, creating a focal point on the text.

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Purpose of This Document

This guide explains some key concepts and processes involved in analyzing qualitative and quantitative data collected through community-led monitoring (CLM).

The aim of this guide is to equip community-led monitoring implementers with some basic skills in data analysis to help them identify the challenges and gaps in health service quality, access, and delivery, and in turn, to suggest possible solutions. The guide discusses the importance of, and the steps involved in, the integration of qualitative and quantitative findings when a *mixed methods* data analysis approach is applied to CLM. Mixed methods refers to a process of combining both quantitative and qualitative data collection and analysis methods.

Rationale

Community-led monitoring is becoming an increasingly powerful tool through which civil society and affected communities can:

- (a) Monitor the functionality of existing health systems.
- (b) Monitor the implementation of different health programs and interventions.
- (c) Identify gaps and challenges with the quality, access, and delivery of HIV, TB, and sexual and reproductive health services.

Monitoring can be done either quantitatively or qualitatively or via a combination of both methods, also known as mixed methods. Quantitative and qualitative methods each have advantages and disadvantages. However, when a CLM implementer combines both methods, multiple perspectives are brought to bear on analyzing gaps and

challenges in service delivery, access, and quality. Typically, most CLM data analysis to date focuses on quantitative data analysis and then uses some qualitative analysis to reinforce or give context to the quantitative findings. (For example: The average clinic wait time was 6.5 hours. As one participant noted, “I am so discouraged by the long wait times, I have been avoiding going to the clinic.”)

However, deeper and more meaningful conclusions can be brought to bear when an integrated analysis of both qualitative and quantitative findings is applied – an approach that remains a challenge for many. Applying a



Who Should Read This Guide

- **CLM implementers with or without formal research education or training**
- **Civil society and community groups who are interested in establishing or strengthening CLM mechanisms in the context of COVID-19**
- **Community leaders (or community-led organizations) using CLM data to advocate for improving access and quality of HIV, TB, and malaria services during the COVID-19 pandemic**
- **Technical assistance providers supporting CLM initiatives**

mixed methods approach in CLM is more than just the concurrent collection of qualitative and quantitative data. A critical step in mixed method approaches is the integration of the qualitative and quantitative findings to draw conclusions from the findings.

This guide provides a short introduction to mixed methods data analysis techniques to help communities integrate findings and bring forward more meaningful insights and conclusions.

Many early-stage CLM programs are preoccupied with data collection. However, as programs mature, it is clear that data analysis is an equally critical phase in CLM. Through data analysis, CLM implementers (civil society organizations and communities) can make sense of the data being collected, identify gaps in implementation, and come up with solutions for addressing those problems.

Conducting data analysis requires a set of specific technical skills. At the moment, most CLM programs outsource their data analysis – to universities, consultants, or other outside partners – which can unintentionally separate the communities who collect the data from having ownership over what the data means. The goal of this guide is not to turn you into an expert on data analysis, but rather, to give you some basic skills in data analysis and how you can integrate and draw conclusions from CLM findings when both quantitative and qualitative methods are used.

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Abbreviations and Acronyms

ART	Antiretroviral therapy
ARV	Antiretroviral(s)
CSO	Civil society organization
CLM	Community-led Monitoring
C19RM	COVID-19 Response Mechanism
DSD	Differentiated service delivery
FGD	Focus group discussion
GBV	Gender-based violence
IDI	In-depth interview
RoC	Recipient of care
SRH	Sexual and reproductive health

1. Background

Despite commendable progress in the global HIV response, HIV continues to be a major global public health issue, taking the lives of more than 650,000 people annually.¹ The COVID-19 pandemic has further threatened the gains achieved in the responses to HIV, TB, and malaria. Several studies and rapid assessments have documented the devastating impact of COVID-19 on the HIV and TB responses, especially in countries where health systems remain fragile.

Implementation of high-impact interventions and evidence-based policies and programming is urgently needed to keep the HIV response on course. For decades, communities have played an invaluable role in the AIDS response by holding policy makers, implementers, funders, and other stakeholders accountable for their commitments.

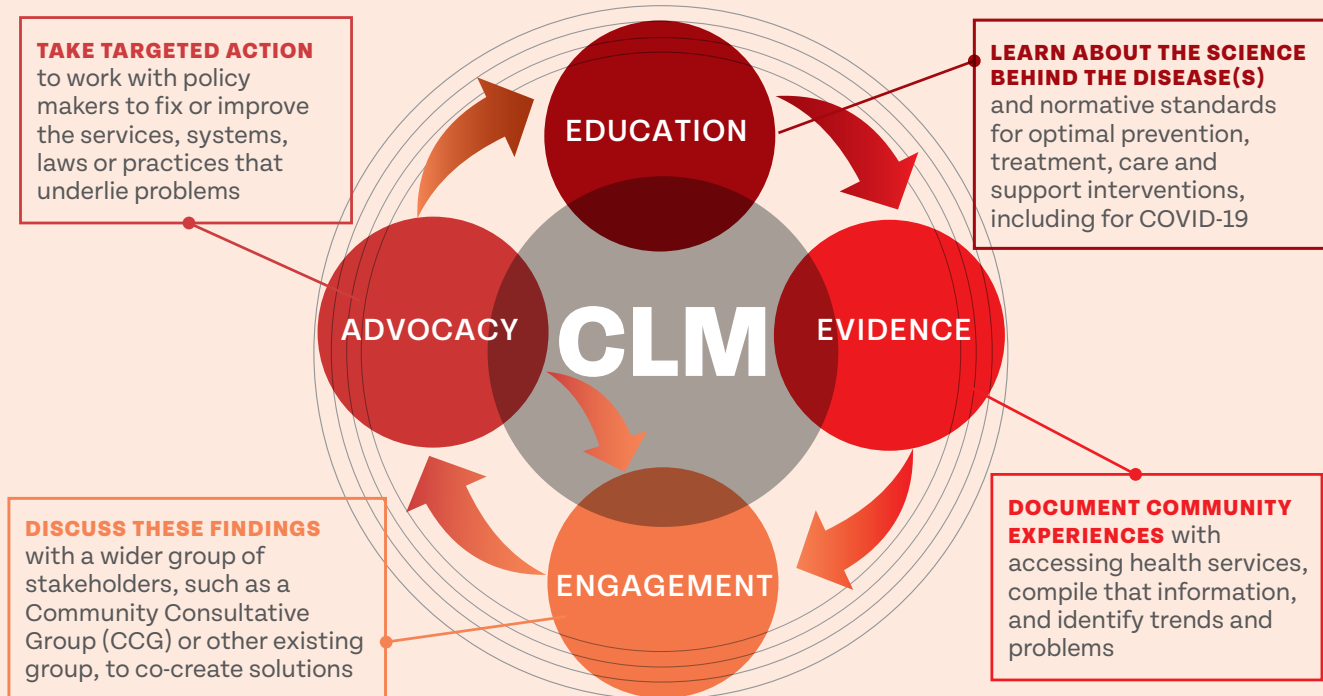
Through community-led monitoring (CLM), civil society organizations (CSOs) and affected communities gather evidence on implementation challenges and gaps, quality, access, and delivery of HIV, TB, and other health services. CLM is a process through which trained community monitors take the lead in the systematic and routine collection and analysis of data on issues that matter to

them. Once problems are identified through CLM, communities then work alongside policy makers to **co-create solutions**.

CLM covers four key areas, as shown in Figure 1: education, evidence, engagement, and advocacy. Each quadrant has specific objectives and corresponding interventions, which build upon each other. All four quadrants must be fully implemented for successful CLM.

(1) World Health Organization (2021), <https://www.who.int/news-room/fact-sheets/detail/hiv-aids>

FIGURE 1 The ITPC Community-led Monitoring Model



To download the ITPC CLM Implementation Toolkit and other resources, visit CLMHUB.org

2. Data Analysis

2.1 What is data analysis?

In community-led monitoring, data analysis is **the process of cleaning and processing raw data to extract relevant and actionable information** that helps CLM implementers make informed decisions about action to improve health service quality, access, and

delivery. Data analysis provides useful insights and statistics, and reduces risk in decision-making. Data analysis is one way through which CLM implementers process big data and turn it into useful information.

2.2 Why is data analysis important?

Data analysis helps you make the right decisions by providing insights into the real issues and challenges with health services.

Through data analysis, as a CLM implementer, you are able to identify areas where service delivery is inadequate or poor, which helps you

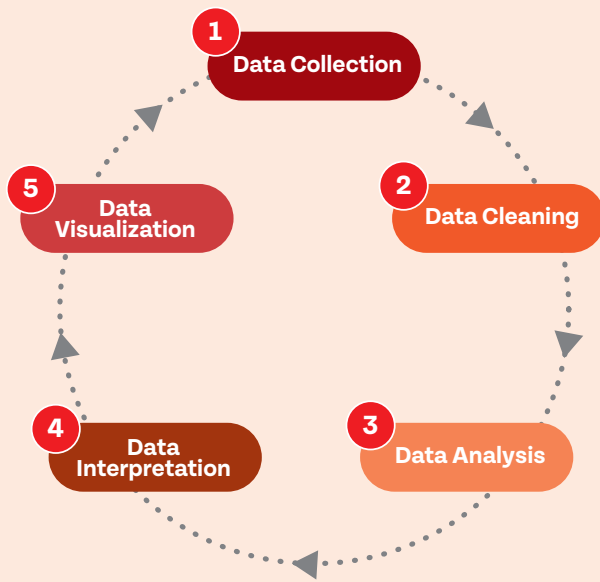
make the most informed decisions about what course of action to take toward improvements. Data analysis also gives you an opportunity to know the service users better, including their preferences and choices.

2.3 Steps involved in data analysis

In CLM, data analysis involves a series of processes aimed at making sense of the data that has been collected. These include **data**

collection, data cleaning, data analysis, data interpretation, and data visualization, as shown in Figure 2.

FIGURE 2 Processing data in the CLM cycle



1. Data Collection

Most of the time, we start thinking about data analysis only after collection has been completed. However, it is important for us to start thinking about analysis the moment we start collecting the data. Data collection is usually guided by the questions of interest to the CLM implementer. (EXAMPLE: “How long did you wait for services today? Was the medicine you needed in stock? Describe your experience with health staff.”) Data can be collected using surveys, interviews, questionnaires, direct observation, and focus group discussions. The type and amount of data collected will determine the type of data analysis method to be used. We will discuss this in detail in the next section.

2. Data Cleaning

After data has been collected, the next step is to clean it. Remember, not all the data you collect will be useful. Hence, it is important to clean it up to avoid errors. The data cleaning process involves removing

duplicates (which may occur during data entry), removing irrelevant data, fixing errors, ensuring clear formatting, and handling missing values in your data set.

3. Data Analysis

Once your data has been cleaned, the next step is to start analyzing your data. Different software and tools can be used depending on the type and quantity of the data to be analyzed. These include Excel, SPSS, Python, MAXQDA, NVivo, and STATA. To learn more about the available data analysis software, please follow these links:

<https://monkeylearn.com/blog/qualitative-data-analysis-software/>

<https://www.thoughtco.com/quantitative-analysis-software-review-3026539>

4. Data Interpretation

Following data analysis, you should have your results, which you can then interpret and come up with the best course of action based on your findings.

5. Data Visualization

Data visualization is a mechanism through which a CLM implementer can graphically show or present their findings in a manner that makes it easy for people to read and understand. To visualize your findings, you can use charts, graphs, maps, bullet points, and other methods. Visualization helps you derive valuable insights by helping you compare data sets and observe relationships.

3. Data Analysis Methods and Techniques

Several methods and techniques can be used to analyze your data. They fall into two primary categories: qualitative and quantitative analysis methods.

3.1 Qualitative data analysis

Qualitative data analysis is the process of organizing, analyzing, and interpreting qualitative data (also known as non-numeric, pictures, observations, perceptions, experiences, and user feedback). The aim is to capture key themes and patterns emerging from

the data and to identify appropriate actions and interventions to improve the situation.

Different approaches are used to analyze qualitative data. The most commonly used methods are content analysis, thematic analysis, and narrative analysis (refer to Table 1).

TABLE 1 Qualitative data analysis approaches

Types of Analysis	Description and Examples
Content Analysis	<ul style="list-style-type: none">→ Content analysis looks at the presence of certain words, emerging concepts, and subjects.→ For example, a CLM implementer may intentionally look for the presence of stigma, drug stock-outs, or long distances to the facility as some of the emerging words and concepts from the data set.
Thematic Analysis	<ul style="list-style-type: none">→ Thematic analysis involves searching the entire data set to identify, analyze, and report repeated patterns and themes in the data set.→ For example, a CLM implementer can use thematic analysis if the intention is to understand a set of experiences, thoughts, and behaviors across the data set, such as recurrent stigmatizing interactions with healthcare providers, prohibitively high user fees, or a lack of health information tailored to the needs of young people.
Narrative Analysis	<ul style="list-style-type: none">→ Narrative analysis uses people's stories to describe human experience and action→ For example, a CLM implementer may use stories or testimonials shared by recipients of care (RoCs) to draw conclusions about the experiences of RoCs with access to health services.

Content analysis is the most common approach used in CLM. Content analysis has the following strengths:

→ It allows for an inductive data analysis approach. An inductive approach is a method whereby a CLM implementer draws conclusions from data collected by starting with specific findings towards general findings. This is also known as “bottom-up” reasoning.

→ Content analysis also allows for a systematic series of steps that can be made explicit and clearly described.

→ Content analysis also allows the CLM implementer to display the evidence (through quotes and interview excerpts).

Refer to Annex 1 for details on the critical steps involved in qualitative data analysis using the content analysis approach.

3.2 Quantitative data analysis

WHAT IS QUANTITATIVE DATA ANALYSIS?

Quantitative data analysis involves analyzing numbers-based data or any other data that can be converted into numbers without losing their meaning and significance.

This is in contrast with qualitative data analysis, where the focus is on words, phrases, stories, and expressions that cannot merely be reduced to numbers.

WHY QUANTITATIVE DATA ANALYSIS?

There are three main reasons why we conduct quantitative data analysis:

1. When we want to measure differences between groups of people

FOR EXAMPLE: if we want to know the uptake of PrEP among adolescent girls and young women in rural areas versus urban, or if we want to know the HIV incidence among key populations compared with the general population

2. When we want to understand or assess the relationship between two or more variables (a person, place, thing, or

phenomenon that you are trying to measure)

FOR EXAMPLE: when we want to establish the relationship between the number of trained cervical cancer providers and the number of women accessing cervical cancer services at a given facility

3. In scientific terms, to test a hypothesis (a statement about the relationship between two or more variables that can be tested)

FOR EXAMPLE: a hypothesis about the impact of a certain differentiated service delivery (DSD) model: we could test whether a certain DSD model (such as Community ART Groups) would result in increased access to ART services

WHY ARE STATISTICS IMPORTANT?

Statistics from quantitative analysis can be used to:

→ Quantify a problem and understand how prevalent the problem is among the population of interest.

→ Spot any potential errors in your data set. For example, if there is a wider variation in responses to a given question than you

expected, it is important to cross-check (or double-check) to make sure that there are no errors made when entering or capturing the data.

→ Give you a clue about what statistical inference technique to use. We will discuss inferential statistics more in the following sections.

3.3 Quantitative data analysis methods

POPULATION AND SAMPLE SIZES

Two key terms are important in quantitative data analysis: **population** and **sample**.

POPULATION

Simply put, a population is the entire group of people that you want to learn more about (for example, the entire population of adolescent girls and young women, key populations, or women living with HIV).

FOR EXAMPLE: if you want to learn more about access to HIV treatment among men who have sex with men in a given country, then your population will be all men who have sex with men living with HIV in that particular country.

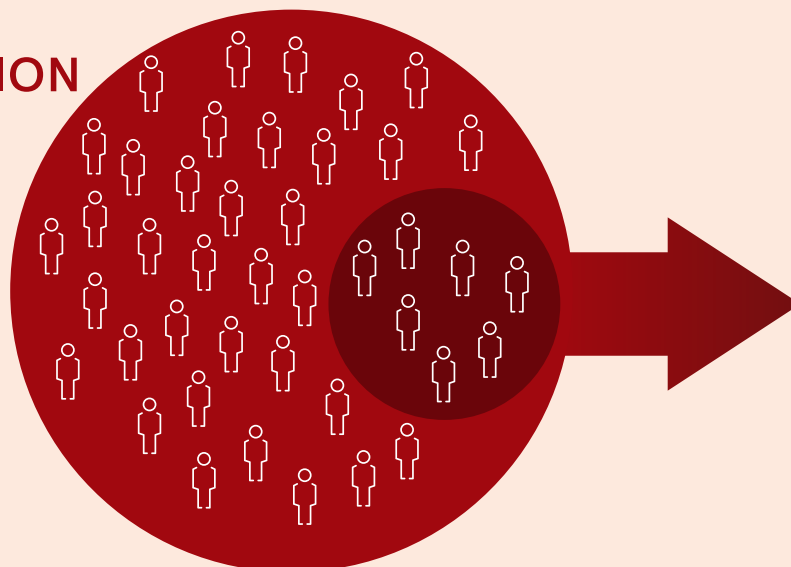
SAMPLE

Under normal circumstances, it is not always feasible to interview or survey the entire population. In the example given above, it may not be feasible to interview or survey all the men who have sex with men in that given country. In most cases, one can get access to only a few hundred or thousand men who have sex with men through a survey. The smaller group of people that you have access to and collect data from is called a sample.

Figure 3 illustrates the difference between a population and a sample.

FIGURE 3 The difference between a population and a sample

TARGET POPULATION



SAMPLE

DESCRIPTIVE AND INFERENCE STATISTICS

Two main methods are used in quantitative data analysis: descriptive and inferential statistics. Depending on the advocacy objectives, aims, and questions, one may use descriptive, inferential, or a mix of both methods.

The main difference between descriptive and inferential statistics is that **descriptive statistics aim to describe the sample population** and **inferential statistics focus on making assumptions** (or drawing conclusions) **about the entire population**, based on the findings within the sample population.

DESCRIPTIVE STATISTICS

As the name suggests, descriptive statistics are used to describe your raw data using statistics, graphs, and tables to help you understand the details about your sample population. The goal of descriptive statistics is not to make any inferences or conclusions about the entire population based on the sample population. The goal is simply to get specific details about the sample population. Descriptive statistics allow you to understand a group of data much more quickly and easily than just staring at rows of raw data values.

FOR EXAMPLE: suppose we have a set of raw data that shows treatment defaulter rates of 600 health facilities in country X. We might be interested in the average defaulter rate, along with the distribution of all the defaulter rates. Using descriptive statistics, we can find the average score and create a graph that helps us visualize the distribution of the defaulter rates. This allows us to understand the defaulter rates of the different health facilities much more easily than just staring at the raw data.

Several statistical tests or measures are used under descriptive statistics. These include mean, median, and mode. To learn more about these statistical measures, please refer to this link: [https://www.statology.org/mean-median-mode-real-life-examples/#:~:text=Mean%3A%20The%20average%20value%20in,\(s\)%20in%20a%20dataset](https://www.statology.org/mean-median-mode-real-life-examples/#:~:text=Mean%3A%20The%20average%20value%20in,(s)%20in%20a%20dataset).

INFERENCE STATISTICS

Inferential statistics use a small sample of data to draw inferences about the larger population that the sample came from.

FOR EXAMPLE: we might be interested in understanding the preference of millions of people for health facility opening hours in a country. However, it would take too long and be too expensive to survey every individual in the country. Instead, we would take a smaller survey of say, 1,000 community members and use the results of the survey to draw inferences about the entire population.

Two kinds of inferences can be made about a given sample based on a given data set using inferential statistics, as shown in Table 2.

TABLE 2 Types of inferences

TYPE OF INFERENCE	EXAMPLE
One can make inferences about the relationship between groups of people.	For example, one can use inferential statistics to know the difference in treatment adherence outcomes among those who live close to a health facility and those who travel long distances to get to the nearest health facility for ART refills.
Inferential statistics can also be used to establish the relationship between variables.	For example, one can use inferential statistics to know the relationship between the number of healthcare workers in a given health facility and the average time one can spend at the facilities to get treated and assisted.

Inferential statistics can help you make the connections, predictions, and assumptions about what you can expect to see in the larger population.

In CLM, we use inferential statistics all the time, given that it is not always feasible to sample or interview the entire population to get insights into a particular issue of interest.

It is also important to note that in inferential statistics, representation of your sample is very important in order to make the right predictions.

FOR EXAMPLE: *if you want to understand the uptake of TB preventive therapy among people living with HIV and if the target population of people living with HIV is comprised of 30% male and 70% female individuals, you should ideally have a sample that reflects those characteristics. If your sample is 50% male and 50% female, then it will be difficult to draw an inference, given that the sample is not representative enough (that is, it differs significantly from the general population that you are working to learn more about because men are overrepresented in your sample).*

TYPES OF INFERENCE STATISTICS

Different types of inferential statistical tests and measures are used during data analysis, but for this guide, we will focus on the most common ones. Most of these statistical tests are commonly used in research. Still, it is important that you know them, given that data analysis in CLM may involve triangulation with other data sources, which include research papers. Hence, it is important that you understand what the different statistical tests mean.

T-TESTS

A T-test is used to compare the means/average of two groups to assess whether they are statistically significantly different. This test is important in understanding how similar or different two groups of data are.

FOR EXAMPLE: *a CLM implementer may be interested to know the difference in average treatment retention rates between adults and pediatric populations.*

CORRELATION ANALYSIS

Correlation analysis is used to assess the relationship between two variables. It is used when one wants to understand how one variable behaves in relation to another variable (that is, if one variable increases, does the other variable increase, decrease, or stay the same?)

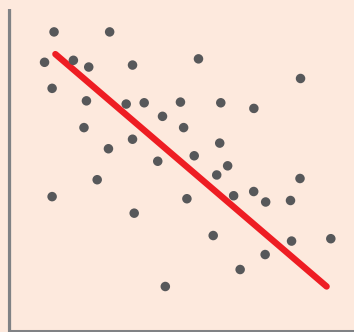
FOR EXAMPLE: *if the distance travelled by a recipient of care to the health facility increases, what happens to treatment adherence? Does it improve, get worse, or remain the same?*

Figure 4 shows how correlation can be presented.

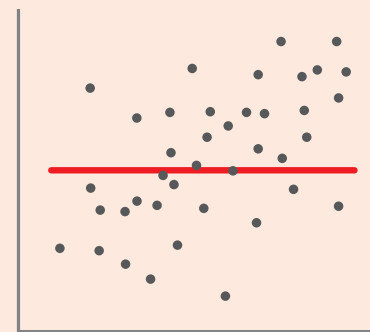
FIGURE 4 Correlation coefficient²



POSITIVE CORRELATION



NEGATIVE CORRELATION



NO CORRELATION

REGRESSION ANALYSIS

Regression analysis is similar to correlation analysis in that it assesses the relationship between variables. The only difference is that regression analysis takes things a step further to understand the cause and effect between the two variables.

FOR EXAMPLE: *if you observe that treatment adherence increases when distance to the health facility decreases, regression analysis helps you find the answers. Is that by chance or are there other facility or community factors that are affecting treatment adherence? Are there some other forces influencing that relationship?*

As mentioned earlier, different CLM programs use different platforms for data collection, management, and visualization. The most common programs are **Commcare**, Excel, and **Kobo Toolbox**. More details are available in the forthcoming Guide on CLM Databases, available on clmhub.org (expected February 2023). Please note that not all the statistics (descriptive and inferential) described in this section can be performed in Commcare, Kobo Toolbox, and Excel. However, data collected through Commcare and Kobo Toolbox can be exported to an Excel sheet or database for further analysis with a tool or software of your choice, for example, SPSS, Stata, R, or Python.

(2) Investopedia 2021: <https://www.investopedia.com/ask/answers/032515/what-does-it-mean-if-correlation-coefficient-positive-negative-or-zero.asp>

4. Data Analysis in the Context of Mixed Methods

4.1 What are mixed methods?

A CLM implementer uses a mixed methods approach to data analysis: they collect both qualitative and quantitative data, analyze it, and integrate the findings to draw conclusions. Mixed method approaches provide multiple ways in which communities can analyze challenges and gaps in service delivery, availability, accessibility, and quality.

Applying a mixed methods approach in CLM is more than just the concurrent collection of

qualitative and quantitative data. A critical step in mixed method approaches is the integration of the qualitative and quantitative findings to draw conclusions from the findings.

To do this effectively, the CLM study design and analysis phases are set up to integrate qualitative and quantitative methods. The following examples illustrate how you can integrate qualitative and quantitative results in mixed methods approaches to draw conclusions from the findings.

EXAMPLE

1

Using qualitative findings to explain a quantitative observation

A CLM implementer collects data on the number of reported cases of gender-based violence (GBV) in a given month using a quantitative survey and follows up with in-depth interviews of a few individuals who completed the survey to help explain the reasons behind, and meaning of, the quantitative survey results.

In this example, knowing the number of reported cases of GBV is critical. However, this information does not tell us anything about why there is a surge in GBV cases in this particular community. Without knowing the factors contributing to the increase in GBV cases, it will be hard for

policy makers and program implementers to come up with the right interventions that can help bring down the number of reported GBV cases – hence, the importance of the qualitative interviews to give context to the quantitative data.

EXAMPLE**2**

Using quantitative findings to understand the magnitude of a given challenge reported qualitatively

A CLM implementer discovers through qualitative interviews that recipients of care at a given health facility have been experiencing stigma from healthcare workers. The CLM implementer then follows up with a quantitative survey to estimate the number of people who have ever experienced stigma from a healthcare worker to understand the magnitude of stigma at the facility.

In this example, a CLM implementer, through qualitative data collection methods, was able to establish that RoCs accessing services from this facility faced stigma and discrimination from healthcare workers. This information was important in highlighting a challenge that had to be addressed. However, given that the sample size is

relatively small when employing qualitative methods, it would have been difficult to establish the level and scale of interventions needed to address this challenge without knowing the magnitude of the problem. Hence, adding a quantitative survey or questionnaire to establish the magnitude of the challenge was key.

The two examples demonstrate that by using mixed method approaches, CLM implementers can overcome the limitations and weaknesses

that arise when each method is used alone. It also allows the CLM implementers to ask a broader set of questions.

4.2 Why use mixed methods approaches?

Qualitative data collected through CLM provides a detailed understanding of a given problem, while quantitative data offers a more general understanding of the problem. Both qualitative and quantitative methods provide different pictures, or perspectives, and each has its limitations.

Qualitative conclusions are based on studying a few individuals and exploring their perspectives in great depth. The conclusions from quantitative findings, meanwhile, are drawn from examining a large number of people and assessing responses to a few variables. For example, when a CLM implementer interviews a few individuals qualitatively, the ability to

generalize the results to many individuals (that is, to the general population) is lost. Likewise, when a CLM implementer quantitatively examines many individuals, the understanding of any one individual is diminished.

By implementing mixed method approaches, the limitations of one method can be offset by the strengths of the other. The combination of quantitative and qualitative data provides a more complete understanding of the issue or problem than either approach by itself. Mixed methods approaches can, therefore, be used to analyze and address complicated health problems that may require both qualitative and quantitative methods.

4.3 Strengths and weaknesses of mixed methods designs

Applying mixed methods approaches and designs in CLM has both strengths and weaknesses, as highlighted in Table 3.

TABLE 3 Strengths and weaknesses of mixed method designs

STRENGTHS OF MIXED METHODS DESIGN	WEAKNESSES OF MIXED METHODS DESIGN
<ul style="list-style-type: none">→ Integrating the quantitative and qualitative findings can increase the generalizability of our findings.→ It can provide stronger evidence from which to draw conclusions about a particular issue.→ CLM implementers can add insights and understanding that might be missed by applying only a single method.→ CLM implementers can answer a broader and more complete range of questions because they are not confined to a single method or approach.→ Words, pictures, and narratives can be used to add meaning to numbers – and numbers can be used to add precision to words and narratives.	<ul style="list-style-type: none">→ To implement a mixed method approach, a CLM implementer has to learn about multiple data collection and analysis methods (that is, both quantitative and qualitative) and understand how to mix them appropriately.→ It can be difficult for a single implementer to carry out both qualitative and quantitative methods, especially if two or more approaches are expected to be used concurrently: this may require a bigger CLM team.→ Implementing mixed methods approaches can be time consuming because there are different processes involved.→ Implementing mixed methods can be more costly compared to implementing only one method.

4.4 When can you use or not use mixed methods design?

You need to consider several factors before deciding whether to implement a mixed method approach or not.

First, the nature of the topic or issue being addressed can tell you whether a mixed method design can best answer the question at hand. Not all situations justify the use of mixed methods. A CLM implementer may

choose to use a qualitative method when they want to explore a problem, honor the voices of participants, map the complexity of the situation, and convey multiple perspectives of participants.

On the other hand, a CLM implementer may choose to use a quantitative method if the goal is to understand the relationship among

variables (that is, if increasing the number of healthcare workers reduces the amount of time a recipient of care spends at the facility) or to determine if one group performs better on an outcome than another group.

FOR EXAMPLE: A CLM implementer may use quantitative methods to understand if RoCs who travel long distances to the health facility have poorer treatment adherence outcomes than those who live close to the facility.

A quantitative survey can also be useful if a CLM implementer wants to understand the views of participants on a given issue in an entire population.

FOR EXAMPLE: A CLM implementer may use a survey approach if they want to get people’s views on the quality of services being offered at a given facility.

INTERPRETING YOUR QUALITATIVE AND QUANTITATIVE RESULTS IN MIXED METHODS DESIGNS

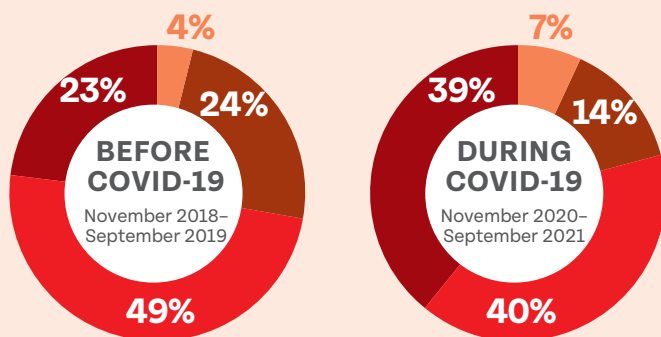
Integration of qualitative and quantitative results is the most critical part of mixed method designs. To draw conclusions and meaning about the findings, you must interpret the meaning of the qualitative results together with the insights from the quantitative results.

There are several ways in which you can integrate qualitative and quantitative findings to draw conclusions. The most commonly used method is joint displays. A joint display is a table or figure that is used to organize data from mixed methods designs. In a joint display, quantitative and qualitative data are presented side by side. Figure 5 shows how quantitative and qualitative results can be integrated and presented using a joint display.

FIGURE 4 A joint display showing CLM findings on viral load turnaround times before COVID-19 and after the COVID-19 crisis

POOR VIRAL LOAD MONITORING

Before the pandemic, 23% of viral load test results at our 15 monitored health facilities in Malawi took more than three months to be returned to the recipient of care. **During COVID-19, this figure rose to 39%.**



● Within 2 weeks ● Within 1 month ● Within 3 months ● More than 3 months

GAP IN COMMUNITY HEALTH EDUCATION

“This month was my blood [viral load] month. It was very different from the way they did things before COVID, because, firstly, when I had to go take bloods at the clinic I used to go to, weigh, and then see a sister and then the sister will see how am I doing. [This time] when I went back to her all she did was give me my new appointment card for June. It was very strange for me because I even asked ‘why are they doing it this way’ and they were saying ‘no, they trying to eliminate time spent at the clinic.’”

– LIFE MAPS PARTICIPANT, SOUTH AFRICA

Looking at the above example, we have a comprehensive picture and can draw conclusions about the state of turnaround times for viral load tests, as well as the impact on RoCs. By looking only at the pie charts on the left (quantitative), we are made aware of an increased turnaround time for viral load tests, but we may not know exactly how that impacts RoCs. However, when the qualitative themes on the right (less frequent interactions with healthcare providers and shorter and less detailed visits when they do occur) are interpreted together with the statistics on

the left, we have insights about both what challenges exist and the scale of those challenges.

In this case, the lengthened turnaround time on viral load tests, combined with fewer and lower-quality interactions with healthcare providers, is creating a gap in community health literacy with individual RoCs less able to understand, interpret, and take action on their viral load test result – with possible implications for adherence to HIV medication.

Conclusion

Data collected via CLM has the potential to pinpoint the root cause of problems impacting communities – but to do so, we must interpret CLM data correctly. In this guide, we have emphasized that **integration** of quantitative and qualitative findings is key when drawing conclusions about a particular issue from a given data set. Mixed method approaches to CLM provide multiple ways in which CSOs and communities can: (a) make sense of the data being collected; (b) identify gaps in implementation; and (c) come up with solutions for addressing those shortcomings (including issues with service delivery, access, and quality).

While CLM involves many steps – from data collection and data analysis to engagement with program managers and decision makers and, finally, advocacy – data analysis is a critical phase in the CLM cycle that is currently under-resourced and most often outsourced to experts outside communities.

As communities develop their skill sets in CLM data analysis, we can more fully offer not just analysis of data, but also lived experiences and insights into the broader social, environmental, and economic factors that shape community access to health services and health outcomes. It is up to us, as advocates, to interpret and analyze our data effectively to help pinpoint the true nature of the problem and co-create effective solutions.

REMEMBER:

Quantitative data can tell us more about an issue by giving us the numbers. Examples are:

- How many people have been affected by an issue (number of people living with HIV)
- The percentage of people affected (HIV prevalence rates in the general population versus adolescent girls and young women)
- A relative increase or decrease over time (number of viral load tests performed every month before COVID-19 versus after the COVID-19 crisis)
- Qualitative data can tell us more about an issue by giving us the stories. Examples are:
 - Individual experiences related through one-on-one interviews
 - Key themes and recurring problems expressed through focus group discussions
 - Insights about contextual factors that shape access to health services
- Looking at either form of data in isolation limits the insights we can glean, but **integrated analysis** ensures that we are capturing the full data story. Only when we have the full story can we truly create effective and lasting improvements.

Critical Steps Involved in Qualitative Data Analysis

Transcription

Interviews conducted during qualitative data collection are recorded upon getting consent from the interviewed participants. Once you have collected your data through focus group discussions (FGDs), in-depth interviews (IDIs), or observations, the first step is to transcribe

your data. There are several free interview transcription software programs available online. Transcription of CLM interviews can be a daunting task but also rewarding, given the richness of the information and insights we get from interview transcripts.

Data Reduction

The first step in data analysis is data reduction. Data reduction is a technique used to manage large data sets collected through qualitative methods (FGDs, IDIs, and observations).

Data reduction involves identifying key issues coming out of the data and focusing on data to be used in answering our advocacy issue.

Two approaches are used for data reduction: **coding** and **creating summaries**.

1. CREATING SUMMARIES

A summary tells an interviewee's story in relation to the advocacy issue we are focusing on.

Key components of a summary

A summary should have the following:

- A heading or label
- Descriptive text extracted from the actual interview transcript
- Evidence to support the argument, which can be an excerpt from the interview transcription, a quote from the transcript illustrating the descriptive text

EXAMPLE

CLM Q1: Adolescent girl and young woman in-depth interview

When the interviewee went to the facility to access SRH services, the healthcare worker told her that she was too young to access SRH services, sent her back home, and asked her to come back with her parents. Because she was so afraid of what her parents would say, she decided not to go back to the facility.

"I was afraid that my parents would think I was sleeping around with boys."

HEADING

DESCRIPTIVE TEXT

QUOTE PROVIDING EVIDENCE

2. CODING

Coding is the most widely used approach for data reduction. It involves identification of sections from the transcribed data set that are relevant to our advocacy issue or analytical goal. It involves naming identified sections of text (or providing descriptive labels) for those sections.

TYPES OF CODING

Open coding

This involves identifying and naming sections of text that are deemed to be relevant to a specific topic or advocacy that we are interested in.

Directed coding

Direct coding involves assigning sections of text to predesignated and defined codes, using a code book.

WHAT IS A CODE BOOK?

A code book is a compilation of codes, definitions, and examples to organize and standardize the coding process. A code book serves as a reference tool, which is used to guide or direct the coding process. A code book helps ensure that there is consistency to the coding process, especially when more than one person is involved in the coding process.

TABLE 4 Code book example

CODE NAME	DEFINITION	EXAMPLE OF QUOTE/TEXT
Long distance to facility	Interviewee describes long distance to the facility as the reason for failing to adhere to ART.	“It takes me 2 hours on foot to get to [the] nearest health ART clinic and when I don’t have money for transportation, I miss my appointment.”
Lack of privacy	Interviewee describes lack of privacy at the facility as a barrier to ART adherence.	“The ART clinic/room is next to the general waiting area and everyone can see you when you go in there and [make conclusions] about your HIV status.”
Low treatment literacy	Interviewee describes lack of knowledge of treatment benefits as the main reason for not adhering to ART.	“When I was pregnant and tested positive for HIV, the doctor told me to start taking ARVs so that I should not transmit the virus to my unborn baby. Now that my baby is fine and she is no longer breastfeeding, I don’t see the reason why I should continue to take the medication.”

PILOTING THE CODE BOOK

Once a code book has been developed, it is important to pilot it as the first step by using it to code new data that was not used in developing the code book. Based on the observations and gaps identified through the pilot process, the code names, definitions, and illustrative quotes in the code book can be revised.

How to choose codes when developing a code book

When developing a code book, the selection of codes is guided by the advocacy issue or question at hand, the originality of the code, and exciting ideas. The selected codes must also be able to answer the issue or question at hand. In other words, the code must be meaningful.

How to use the code book

As mentioned above, a code book can be used as a reference tool to guide the coding process. When coding the interview transcript, it is possible to find sections within the texts that concern two codes. If that is the case, one can decide to double code that particular section or decide which of the two codes is more suited for that section of text. It is also important to decide on the length of the section that needs to be coded, meaning, where to start and where to stop. During the coding process, new ideas may come up and it is important to take note of those and revisit them later.

THEME CONSTRUCTION

After coding the data, the next critical step is constructing themes from the coded data. Themes are a medium used for presenting qualitative results. A theme can be many things. It can be a concept that can be generated after reviewing the coded data. Themes are the building blocks for qualitative data analysis and reporting.

COMPONENTS OF A THEME

A theme is comprised of three components: label, elaboration, and illustration.

Label

A label is a descriptive phrase from the coded data that summarizes and tries to communicate the meaning of the concept or idea being presented by the theme. An example is “poor health worker attitude.” Poor health worker attitude is an overarching concept that encompasses all health worker practices that negatively affect the experiences of recipients of care when accessing services at the facility.

Elaboration

Elaboration is text that specifies the meaning of the label. In other words, the elaboration tries to provide more details about the idea or concept

being presented by the label. In the example given above (poor health worker attitude), an elaboration would be a text that describes the specific behaviors and practices of healthcare workers that falls within that broader category of poor health worker attitude.

EXAMPLE: Most of the recipients of care interviewed complained about the negative treatment they receive from healthcare workers when they go to the facility to access services. Some healthcare workers shout at the RoCs, especially when they miss their appointment date and come to the facility on a different day. RoCs feel this poor healthcare worker attitude is what is increasing the number of RoCs who are defaulting on treatment.

Illustration

An illustration is an example or quote from the data that provides evidence of what is being described in the elaboration. In line with the example above, an illustration would be: “When it was my turn to be assisted, the nurse sent me to the back of the line to punish me because I had missed my appointment date.”

DEVELOPING AN ARGUMENT

After developing themes from the coded data, the next step is to develop an argument to draw conclusions about a particular issue from the given data set. Generally, an argument concerns the data’s larger meaning or significance. An argument also tells a story about the data in aggregate, taking cognizant of the fact that not all parts of the story apply to one person. Usually, an argument has a logical structure, is explanatory, and addresses the advocacy issue of interest.

HOW TO DEVELOP AN ARGUMENT

Developing an argument can be done by linking the different themes developed to come up with a broader statement and meaning explaining the qualitative data.

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