Overview of Nutrition

Introduction

Infection with human immunodeficiency virus (HIV) increases an individual’s energy and nutrient requirements. In addition, malnutrition accelerates the progression of HIV infection. Because of this negative interaction, the Malawi Ministry of Health (MOH) established the Nutrition Care, Support and Treatment (NCST) program in 2005. The program currently operates in 157 out of the 657 clinics that provide antiretroviral therapy (ART) in Malawi to provide nutritional support for people living with HIV.

A rapid review conducted in 2011 revealed that there were challenges in the design and implementation, comprehensiveness, coverage, integration, M&E, QI, sustainability of the Malawi NCST program.

In 2012, the Ministry of health and Nutrition Department and the Office of the President and Cabinet Department of Nutrition, HIV and AIDS (OPC/DNHA) began working with partners to improve nutrition care for people living with HIV. The partners include Applying Science to Strengthen and Improve Systems (ASSIST), Food and Technical Assistance (FANTA), and Livelihoods and Food Security Technical Assistance (LIFT). MOH selected sites in Karonga and Balaka districts to be used as pilot sites and later to use the lessons from these districts to strengthen the national NCST program.

Purpose of the Module

Enable health care providers to understand and develop a set of measurable practices to routinely provide nutrition care, support and treatment (NCST) to people living with HIV in compliance with Ministry of Health (MOH) standards within the constraints they face in their work. This session will also enable participants to develop an action plan for integrating NCST within HIV services.

Learning Objectives

- Explain the concept and critical components of quality improvement (QI)
- Describe the quality improvement approach in NCST
- Discuss the process of integrating NCST into HIV care using the improvement model; Plan, Do, Study, Act (PDSA cycle)
- Develop an action plan for implementation for the first three steps
Session 1.1. Definition of Quality and Principles of Quality Improvement

**Quality**: is the ability to satisfy stated or implied needs of a person/ population, performance according to standards or expectations, conformity to requirements, appropriateness for purpose or use, meeting the client’s reasonable expectations and doing the right things right.

**Quality improvement**: is an approach that tests promising changes in health care processes with the goal of improving health outcomes and systems performance.

**Quality Assurance**: refers to the oversight process, including the adherence to standards and guidelines.

**Difference between Quality Improvement and Quality Assurance**: QI and QA are distinct but intersecting components both of which are critical for improving programs. They are not mutually exclusive terms and neither can be successful without the other.

Figure 1. Quality Assurance and Quality Improvement

The current problem with provision of care is that we are failing to reach those that need the service comprehensively and at an adequate scale.

Session 1.2 Principles of Quality Improvement

There are four basic principles of quality Improvement namely 1) Client focus, 2) Understanding work as processes and systems, 3) Testing changes to know what works and emphasizing the use of data for making decisions, 4) Teamwork.
1. **Client Focus.**

Services should be designed so as to meet the needs and expectations of clients and community. There are many dimensions of quality. Six most important dimensions include:

- **Effectiveness of care:** The degree to which desired results (outcomes) of care are achieved
- **Efficiency of service delivery:** The ratio of the outputs of services to the associated costs of producing those services or the extent to which the recourses needed to achieve the desired results is minimized.
- **Safety:** The degree to which the risks of injury, infection, or other harmful side effects are minimized: there should be no harm to patients
- **Access to services:** The degree to which services are unrestricted by geographic, economic, social, organizational, linguistic, or other barriers
- **Timeliness:** The delivery of ongoing and consistent care as needed, including timely referrals and effective communication among providers
- **Equity:** the provision of services without form of discrimination

- **Patient centered** - The establishment of trust, respect, confidentiality, and responsiveness achieved through ethical practice, effective communication, and appropriate socio-emotional interactions

2. **Understanding Work as Processes and Systems.**

Providers must understand the service system and its key service processes in order to improve them.

A **process** is defined as a sequence of steps through which inputs are converted into outputs.

A **system** is defined as the total of all the elements (including processes) that interact together to produce a common goal or outcome.

**Table 1: A System for QI**

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Process</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resources necessary to</td>
<td>A series or sequence through which</td>
<td>The outputs (services/products) and outcomes</td>
</tr>
<tr>
<td>carry out a process</td>
<td>inputs are transformed into outputs</td>
<td>(health outcomes) result from the inputs &amp;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>processes</td>
</tr>
</tbody>
</table>

Getting the outcome you want depends on having the right inputs and the right processes. All systems are different and the relative contribution of inputs or processes to the quality of the outcome varies. This is easier to explain with an example below

**Table 2: Example of a system**
Below is a standard process to good nutrition care. It is important to know this standard process because it acts as a benchmark for service providers to see whether all steps of care are adequately provided to patients.

**Figure 2: Steps of standard nutrition care**

<table>
<thead>
<tr>
<th>Inputs (Resources)</th>
<th>Processes (Activities)</th>
<th>Outcomes (Results)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• People</td>
<td>• What is done?</td>
<td>• Health services delivered</td>
</tr>
<tr>
<td>• Equipment</td>
<td>• How it is done?</td>
<td>• Change in health behaviour</td>
</tr>
<tr>
<td>• Supplies</td>
<td></td>
<td>• Change in health status</td>
</tr>
<tr>
<td>• Infrastructure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Information</td>
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</table>

Processes can cause inefficiencies due to problems that occur in the execution or the transition of one step to the next. Inefficiency in a process often results from unnecessary steps that add complexity, waste, and extra work to a system, ultimately reducing the overall quality of care. Tools such as the flowchart help people understand the steps in a process. Processes also may be unclear and/or missing steps, and therefore in need of clarification. Through the understanding of the processes and systems of care, QI teams can identify weaknesses and change processes in ways that make them produce better results.

3. **Testing Changes and Emphasizing the Use of Data.**

   Solutions are tested in order to determine whether they yield the required improvement.
• Data are used to analyze processes, identify problems, and to determine whether the changes have resulted in improvement
• Analyzing the variation in data is important for learning and decision making

4. Teamwork.

Improvement is achieved through the team approach to problem solving and quality improvement.

Quality improvement teams are important for the reasons stated below:
• Healthcare processes consist of inter-dependent steps that are executed by different people. A team working within a process will understand it better than any one person. Including key people in the improvement of a process often involves clarifying and incorporating the insights and needs of clients into healthcare delivery.
• Quality faults often occur in the hand-over between people. The involvement of key people with insight into the process, such as representatives from each function, helps reveal the errors that occur during hand-offs.
• Given the opportunity, staff can often identify problems and generate ideas to resolve them.
• Participation improves ideas, increases buy-in, and reduces resistance to change
• Accomplishing things together increases the confidence and commitment of each team member, which empowers organizations. This atmosphere of support discourages blaming others for problems.
Session 1.3 Model for Improvement Causes of Malnutrition

1. Identify
2. Analyze
3. Develop

Plan

Act
4. Test and Implement
Do

Study

Adapted from: T. Nolan et. al. The Quality Improvement Guide

Session 1.4 Applying the quality improvement model

Step 1: identify

In this step service providers identify the problem by
i. Identifying the area to improve,
ii. Clearly defining the aim for improvement,
iii. Determining the process(es)/ system that yield this goal for improvement
iv. Deciding who should be on the team that will solve the problem
v. Achieving a consensus on the problem by the team

Identify the problem
Are for improvement may be identified by
- Use of patient complaints
- Routine patient treatment data, program monitoring indicators, direct observation

Exercise: Use Appendix 1- Problem identification index to identify the areas that need improvement at your site. Prioritize the areas for improvement based on the following:
High risk: Could have the most negative effect if the quality is poor
High volume: Takes place often and affects a large number of people
Problem prone: An activity susceptible to errors
Step in process of care

Write down the problem statement
Example: Waiting times for patients have been shown to take up to three hours. This has been stated as a reason that most patients do not return for the appointments at the hospital

Define the Improvement Aim
Service providers need to develop an improvement aim statement to address the problem identified
• A defined boundary that specifies the scope of the improvement goal
• Specific numerical goals for outcomes that are ambitious but achievable
• A timeframe (how much improvement by when?)
• Guidance on how the aim will be achieved

Example: At Phimbi Health Centre, we will assess and categorize every client who visits the ART, PMTCT and TB clinics using MUAC or BMI within 3 months

Exercise: Develop an aim statement for the problem statement

Form an improvement team
Once the aim for improvement is clearly defined, key people should be identified to work on the team. The team should consist of key players in the parts of a process being improved

Exercise: Identify key people to work on the problem you have identified above.

Step 2: Analyze the problem

Understand the process(es)/system that yield this goal for improvement
Analysis is performed to better understand the process that needs to be improved or the system in which the improvement effort will be based. Process mapping or flow chart is used to help teams understand how their work related to others
Process analysis is important because of the following
• It makes the process clear and understandable
• It reduce complexity
• It eliminate unnecessary steps
• It helps to avoid extra work and re-work
• Rationalize the steps of the process
• Reduce waste
Creating a flow chart
When creating a flow chart, you must:
i. Decide on the beginning and end points of the process to be flowcharted
ii. Identify the steps of the process
iii. Link the steps with arrows showing direction
iv. Review the draft to see whether the steps are in their logical order

**Exercise:** Using the symbols in the table below, draw a flowchart for the process that applies to your aim statement. *(Refer to Appendix 6)*

![Flowchart symbols](image)

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**Conduct cause and effect analysis**
A cause-and-effect analysis generates and sorts hypotheses about possible causes of problems within a process. This is done by listing all of the possible causes and effects for the identified problem. Cause-and-effect analyses allow problem solvers to broaden their thinking and look at the overall picture of a problem. The cause and effect analysis is done by asking ‘five whys?’ or by conducting a fishbone analysis using a fish bone diagram.

**Exercise:** List all the possible causes of the problem you identified. Group the causes by staff/provider, resources/equipment, process/procedure, patients e.t.c *(Refer to Appendix 7 for details)*

**Developing Indicators**
Indicators are used to measure whether a change resulted in improvement or not. Measuring using indicators helps teams understand which change is effective from a list of all the changes they are testing.
Indicators should be linked to aims, should be used to guide improvement and test changes, Should be integrated into the team’s daily routine, Will allow teams to learn and should concentrate on key measures.
A good indicator should be clear and unambiguous, quantifiable, should identify the source of the data and the person responsible for collecting it, should identify a clear numerator and denominator and, should identify the frequency with which the data should be collected.

**Example:**
- **Indicator:** proportion of clients assessed and categorized
- **Numerator:** Number of clients assessed
- **Denominator:** Total number of clients visiting the PMTCT, ART and TB clinic
- **Source:** Assessment registers
- **Person responsible:** Data clerk at ART, nutrition focal persons at TB and ART
- **Frequency:** Monthly

**Exercise:** Write down the indicators you will be tracking for the selected improvement aim as in the example above.

**Analyzing data variation**

In the QI process, service providers work with data continuously to identify gaps in service, test changes to see what happens. Time series charts are used to show data for an indicator over time.

**Developing a time series chart**

When developing a time series chart teams need to ensure that the chart has the following components:

- Clear and well defined title on top of the graph that includes when and what we are measuring
- X and Y axis have clear scale and include indicator label
- Numerator and denominator values are shown for each month
- Numerator is defined including data source and sampling strategy
- Denominator is defined including data source and sampling strategy

**Example: Time series chart**
Step 3: Develop changes

Step three of the improvement model uses the information from the previous steps to ask what changes will bring improvement. Teams develop possible solution/changes to the identified problem. These changes are not facts until tested to prove they are really effective changes. A brainstorming session is key to developing changes that are feasible.

**Exercise:** Brainstorm and list all possible changes to address the problem identified. Rank the changes according to importance and practicality. Focus on changes that will not need external support.

Review the list of changes tested and proved to be effective by other teams on Appendix 10.

What other changes would you want to try from Appendix 10 in addition to your changes?

Step 4: Testing and implementing changes
This step tests the hypothesis to see if the proposed solutions yield the expected improvement. It comprises of three steps.

| PLAN | • Develop a plan for the change selected  
      
      *What changes will occur and where? Who is responsible for making the change? When and how will the changes occur?*  
      • Collect baseline data on the change.  
      • Select indicators. What are you going to measure for you to know you are improving  
      • Educate and communicate: Inform people about the test of change; include those people involved in the change and be sure they accept the change |
|------|------|
| DO   | • Test the change  
      • Verify that the change is being tested according to the plan  
      • Collect data about the process being changed  
      Check that the data are complete and document any changes that were not included in the original plan  
      • Test BIG changes on an initially small scale, then ramp up  
      - Focus on learning rather than planning and thinking  
      • Test one change at a time when possible |
| STUDY| • Verify that the change was tested according to the plan  
      • See if the data are complete and accurate  
      • Compare the data with the baseline information to determine whether an improvement has occurred  
      • Summarize results and plot on series chart. Communicate what was learned from the previous steps |
### Session 1.5 Monitoring Quality Improvement Activities

QI activities are monitored using different tools that are discussed in detail below. Explain that documentation is key in all aspects of improving service delivery. Documented NACS and QI tools must be carefully filed and stored in a safe place. Data collected should first be used by teams to understand their results and to make decisions.

#### QI Data collection and analysis tools

The following tools are used in data collection and analysis:

- **NCST client register and NCST case management register:** For recording patient information *(Discussed in module 2)*

- **QI report form:** For reporting all NCST Indicators work. There are some indicators that are collected specifically for QI purposes. This data should be collected and consolidated separately *(See Appendix 2)*

- **QI documentation journal:** for tracking improvement work. *(See Appendix 3)*

#### QI team building for best performance

**QI team building guide**

Service providers need to form and sustain high performance teams that will work to achieve their common improvement goals. Refer to Appendix 9 to understand how to build a high performance team.

**Scope of work for QI teams**
A QI team must have a purpose for it to be sustained. Each member of the team must know and understand the objective of the team, why they are included in the team and must be committed and accountable for their roles and responsibilities given in the team. Refer to Appendix 11

**QI team maturity index**
A high performing team is expected to grow in the levels of different QI processes. A team maturity Index is a useful tool for teams to rate themselves on the level of maturity in undertaking QI process *(see Appendix 4)*. Teams must assess themselves *every month* during the QI meetings and must work to go up higher the levels of maturity.