

Part

# 3

A Step-by-Step Approach:  
The Program Management Cycle



# PART THREE

## A Step-by-Step Approach: The Program Management Cycle



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# MESSAGES FOR PART THREE

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1. Recognize the principles for applying the step-by-step approach in the program management cycle, including:
  - ❖ general principles for newborn health programming;
  - ❖ the role of the program manager; and
  - ❖ the role of the stakeholders and how to involve them.
2. Understand Step 1 (how to define the problem for fetal-neonatal health in the local setting, systematically review data, and involve key stakeholders).
3. Understand Step 2 (how to organize a performance assessment for the health care delivery system, use data, and involve key stakeholders).
4. Understand Step 3 (how to prioritize the intervention(s) that will be most effective and feasible in the local setting and implement these to best meet the local needs).
5. Understand Step 4 (how to distinguish between monitoring and evaluation, including their focus, types of data collection, analysis, and timing).
6. Appreciate that the four-step program management cycle, the Health Care Delivery System (HCDS), and the Health Management Information System (HMIS) contribute to ongoing program improvement.



# TERMINOLOGY FOR PART THREE

## **Health care delivery system (HCDS):**

The HCDS includes all people who provide and receive health services. These individuals can be categorized in three sectors:

- ❖ the community/informal sector;
- ❖ the intersectoral sector; and
- ❖ the formal health care sector.

All three sectors play a vital role in making and implementing decisions in the program management cycle.

**Health management information system (HMIS):** The HMIS is used to collect and analyze key data. It allows the program manager(s) and stakeholders to better organize their data and to transform the data into useful information for decision-making and effective management.

**Program management cycle (a step-by-step process):** The program management cycle is a four-step process that assists the program manager and key stakeholders to:

1. identify the key problem(s) in their setting;
2. assess performance of the HCDS;
- 3a. prioritize interventions;
- 3b. implement appropriate interventions; and
4. monitor progress and evaluate outcomes.

**Program manager(s):** This individual may be any of the following:

- ❖ the District or Regional Medical Officer;
- ❖ the program/project manager of a local or international nongovernmental organization; and
- ❖ the manager of Safe Motherhood/reproductive health or Child Survival programs.

**Stakeholder(s):** Stakeholders are people who either make decisions or influence decision making in the informal/community, intersectoral, and formal sectors of the HCDS.

## I. PRINCIPLES FOR A STEP-BY-STEP APPROACH TO NEWBORN PROGRAMMING

### PROGRAMMING PRINCIPLES FOR NEWBORN HEALTH

- ▶ **PRINCIPLE 1**  
Rights of the mother *and* baby.
- ▶ **PRINCIPLE 2**  
A systems approach involving the health care delivery system.
- ▶ **PRINCIPLE 3**  
Adaptable health management information system.
- ▶ **PRINCIPLE 4**  
A step-by-step approach: the program management cycle.

### A. General Principles for Newborn Health Programming

The general principles for improving maternal and fetal-neonatal outcomes are outlined in the Introduction. This section describes how the program management cycle can be used to put these principles into practice systematically to improve newborn survival in the local setting area.

#### PRINCIPLE 1: Rights of the mother *and* baby

The main goal is to improve the survival and health of newborns and women in the local setting. Even if women have low status and newborns may not be considered fully a person, they have rights as human

beings. Their value and the fact that newborn and maternal outcomes can and must be improved is the motivation for newborn programming.

#### PRINCIPLE 2: A systems approach involving the health care delivery system (HCDS)

Fetal-neonatal deaths result from a complex combination of interrelated social and medical causes, and no single intervention can adequately address this problem. The goal is to strengthen the local system, not simply to build a parallel system for a separate program. The HCDS includes all people who provide and receive health services. These individuals can be categorized into three main sectors presented below.

**Informal/community sector:** Individuals, households, and the community (including traditional providers).

**Intersectoral sector:** Members of the intersectoral sector who may reside in the community (i.e., teachers, development committees, transportation workers).

**Formal health care sector:** All health institutions and personnel (including private, missionary, and government sectors).

Because many maternal and fetal-neonatal deaths occur in the community, solutions cannot lie solely in the formal health care sector. In fact, both the community and the intersectoral sectors (transport, education, schooling, etc.) play a vital role in improving fetal-neonatal and maternal outcomes. The needs of the mother and the fetus or neonate may change rapidly, thus making recognition and response to danger signs crucial. The program management cycle allows program managers and stakeholders to identify strengths and weaknesses at all levels of the local system. It also allows the program manager to maximize access to quality health services for women and their newborns.

### **PRINCIPLE 3: Adaptable health management information system (HMIS)**

The HMIS is a basic system for collecting and analyzing key data. Use of this system allows the program managers and stakeholders to better organize data and to transform it into useful information. It is crucial for the program manager to use information for decision-making in all four steps of the program management cycle and at all levels of the health system.

### **PRINCIPLE 4: A step-by-step approach: the program management cycle**

There are four steps in the program management cycle;

1. define the fetal-neonatal health problem;
2. assess performance of the HCDS;
- 3a. prioritize interventions;
- 3b. implement interventions; and
4. monitor progress and evaluate outcomes.

Input, participation, discussion of perceptions and resources, and implementation from all sectors is essential for the HCDS to reach its greatest potential. In each step, the potential roles for each sector in the HCDS are identified.

#### **B. The Role of the Program Manager**

As outlined in the Introduction, many individuals are included under the title “program manager.” It may refer to the following individuals:

- ❖ the District or Regional Medical Officer;
- ❖ the program/project manager of a local or international non-governmental organization; and
- ❖ the manager of Safe Motherhood/reproductive health or Child Survival programs.

This list, though not exhaustive, indicates that the target for this information is the program implementers. Although program managers may have slightly different roles, they all need to make programmatic decisions.

The overall role of the program manager is to facilitate the provision of quality information and services to a population to achieve the highest possible level of health. No one person can do this alone; thus partnership is key. That is why a comprehensive view of the HCDS is emphasized throughout the manual. All the sectors of the HCDS - community, intersectoral and formal sectors - have a vital role to play in improving the health status of the populations.

### C. The Role of the Stakeholders

The program manager must answer three questions to develop a plan to involve the stakeholders.

Who are the key stakeholders?

What is the purpose of involving each stakeholder group?

How can the key stakeholders be identified and involved?

**Who is a stakeholder?** In general terms, a stakeholder is an individual or a group who has an interest or a stake in achieving the desired objectives. In simpler terms, they are the key people that make or influence decision-making in the informal/community, intersectoral, and formal sectors of the HCDS. Thus, it is important to identify the key stakeholders in all sectors.

There are many stakeholders in various areas of decision-making and/or areas of influence (Table 3.1). The stakeholders can be identified formally or informally. Formally, the program manager could ask the Ministry of Health (MOH) who the District Medical Officer is or ask the Ministry of Transportation who the head of the transportation department is. These are official and permanent positions even though the personnel may rotate; the information is usually available to the public. Identifying stakeholders informally is more difficult. These stakeholders are known to the community and may include village chiefs, women's groups, or traditional birth attendants (TBAs). By asking people or NGOs in the community, the program manager could identify key stakeholders. Participatory tools, such as mapping pattern of service use, may also help in identifying the stakeholders.

**Why involve stakeholders?** In many communities with high rates of fetal-neonatal, and maternal mortality, other social, economic, and health problems may be perceived as more important to the community. Sometimes people may feel that no problem exists. For example, people may believe that it is normal for neonates to die, and there is nothing they can do about it. Raising consciousness of how healthy mothers and babies contribute to the community's overall well-being may be the first major step.

There are four main reasons for involving stakeholders in every step of the program management cycle:

- ❖ developing broad ownership of the problem;
- ❖ identifying existing resources available to address the problem;
- ❖ motivating collective action based on the strengths of the various partners; and
- ❖ design interventions and strategies that reflect the local needs (i.e., respect of local culture) to foster sustainability.

**How to involve stakeholders?** To involve the stakeholders actively in the process, the program manager must prioritize which groups are the most critical in terms of fetal-neonatal health. There might be a small core group that meets more frequently and a large group that meets less frequently, but it is essential to foster ownership among all groups of the problem and its solutions.

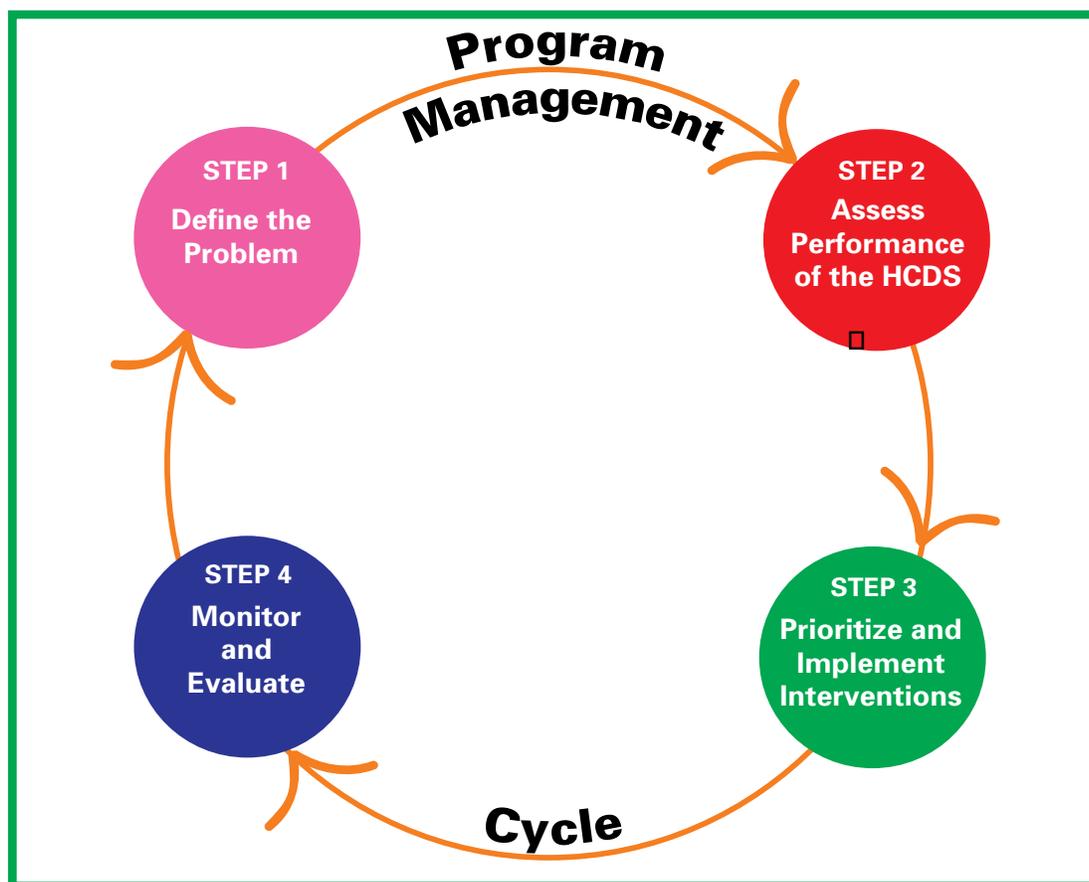
**TABLE 3.1**  
**EXAMPLES OF KEY STAKEHOLDERS BY SECTOR**

	<b>INFORMAL/COMMUNITY</b>	<b>INTERSECTORAL</b>	<b>FORMAL</b>
<b>WHO?</b>	<ul style="list-style-type: none"> <li>• Village and religious leaders.</li> <li>• Women's group leaders.</li> <li>• Health providers (TBAs, village doctors).</li> </ul> <p>Note: Women are often minimally represented in local/community decision-making bodies.</p>	<ul style="list-style-type: none"> <li>• Teachers.</li> <li>• Local development boards.</li> <li>• Transportation department.</li> </ul>	<ul style="list-style-type: none"> <li>• Nurses and midwives.</li> <li>• Doctors in clinical service (including private practice).</li> <li>• District/regional medical officers.</li> <li>• Other national MOH staff.</li> <li>• Academic medical staff, if appropriate.</li> <li>• NGOs and others active in formal health care provision.</li> </ul>
<b>WHY?</b>	<ul style="list-style-type: none"> <li>• To include client viewpoints on the problem and the current performance of the system for fetal-neonatal health.</li> <li>• To promote ownership of the problem and the potential solutions within the community.</li> <li>• To mobilize community resources.</li> </ul>	<ul style="list-style-type: none"> <li>• To mobilize resources (i.e., transport, development funds, communications, education).</li> <li>• Involvement may influence policy.</li> </ul>	<ul style="list-style-type: none"> <li>• To understand staff perceptions (positive or negative).</li> <li>• To promote ownership of the problem and the potential solutions.</li> <li>• To access and improve the data available.</li> </ul>
<b>HOW?</b>	<ul style="list-style-type: none"> <li>• Community-wide meetings.</li> <li>• Focus group discussions.</li> <li>• Community mapping.</li> </ul>	<ul style="list-style-type: none"> <li>• Community-wide meetings.</li> <li>• Focus group discussions.</li> </ul>	<ul style="list-style-type: none"> <li>• Collection and presentation of data.</li> <li>• Discussion meetings.</li> <li>• Participation in audits.</li> </ul>
<b>CHALLENGES?</b>	<ul style="list-style-type: none"> <li>• May not perceive as a problem (lack of knowledge, gender difference in perception, newborn not valued).</li> <li>• Traditional practices.</li> <li>• Mistrust of formal health system.</li> <li>• Cost/lack of resources.</li> </ul>	<ul style="list-style-type: none"> <li>• Not traditionally included in these sectors.</li> <li>• Poor communication/ lack of established relationship.</li> </ul>	<ul style="list-style-type: none"> <li>• Limited number of technical, competent staff.</li> <li>• Underpaid, poor motivation.</li> <li>• Negative attitudes.</li> </ul>

## II. A STEP-BY-STEP APPROACH: THE PROGRAM MANAGEMENT CYCLE

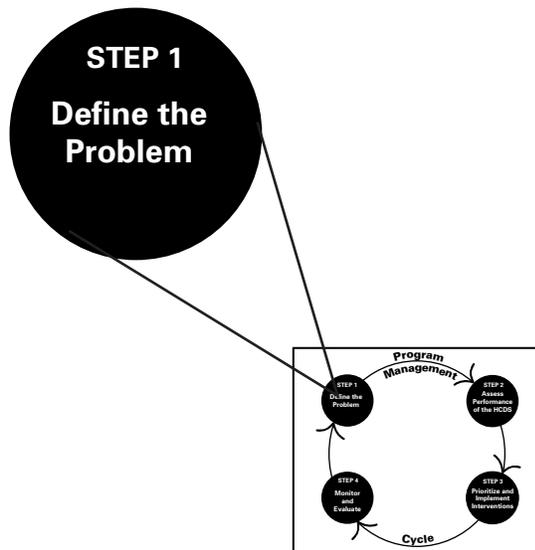
This section provides a more detailed description of the program management cycle for establishing or refocusing a program to address fetal-neonatal health. The aim is to enable the program manager and key stakeholders to make better decisions about fetal-neonatal and maternal health programming. This section is organized by the four steps of the program management cycle (Figure 3.1).

**FIGURE 3.1**  
**THE PROGRAM MANAGEMENT CYCLE**



In most situations the program manager will begin the cycle at Step 1: (problem definition) and proceed in a clockwise manner, through assessing performance, prioritizing and implementing interventions, and monitoring and evaluating results. However, one of the advantages of the cycle is that a program manager can start anywhere.

For purposes of explanation, the problem definition will be the first step here. This step-by-step approach allows the key problems to be identified and an intervention to be designed to address the key newborn health issues in the local setting. For each step, there is an explanation of how to use information for decision-making and how to involve the stakeholders. A descriptions of tools that may be useful at each step is also provided. Additional details on tools are provided on the attached CD-ROM. This cyclic approach allows the program manager to go through the steps of the program management cycle again and again, continuously building on improvements to strengthen the local HCDS.

**STEP****1****DEFINE THE FETAL-NEONATAL  
HEALTH PROBLEM**

- A. What is a Problem?**
- B. How is a Problem Defined?**
- C. How Can Data/Information be Used to Define the Problem?**
- Action 1. Collect and examine data.  
 Action 2. Compare the local data with a standard population.  
 Action 3. Understand the “Opportunity Gap” in the local setting.  
 Action 4. Identify the key problems to be assessed in Step 2.
- D. How Can Key Stakeholders Participate in Defining the Problem?**

**Summary of Step 1**



# TERMINOLOGY FOR PART THREE

## STEP ONE

**Age at death:** Age at time of death of fetus or neonate.

**Attributable risk:** A measure of the amount of the health outcome (i.e., newborn deaths) that can be attributed to a specific problem (i.e., neonatal tetanus).

**BABIES** (Birth weight and Age at death Boxes for an Information and Evaluation System): An assessment tool that allows a program manager to organize data on newborn health.

**Birth weight group:** Category of birth weight; may be divided into categories (i.e., less than 1.5 kg, 1.5 kg to 2.5 kg, greater than 2.5 kg) or may be assessed in terms of small and normal.

**Fetal death rate:** 
$$\frac{\text{Death among fetus aged 22-40 weeks}}{\text{Number of total births (stillbirths and live births)}} \times 1,000$$

**Fishbone diagram:** This is often called the "But Why" diagram. This diagram helps to identify the problem and its underlying causes by asking a series of "But Why" questions to each response.

**Incidence:** The number of new cases divided by the total number of cases (both old and new).

**Low Birth Weight (LBW) Rate:** 
$$\frac{\text{Death among LBW babies aged 0-28 days}}{\text{Number of LBW babies}} \times 1,000$$

**Neonatal mortality rate:** 
$$\frac{\text{Deaths of babies aged 0-28 days}}{\text{Number of Live Births}} \times 1,000$$

**Opportunity Gap:** The difference between health indicators in an appropriate standard population and those in the population of the project setting.

**Prevalence:** The existing cases divided by the total number of cases (both old and new).

**Problem:** A gap between the way something is and the way we want it to be.

**Relative risk:** The ratio of the risk of disease or death among those exposed to the risk compared to the risk among the unexposed; this usage is synonymous with risk ratio.

**Standard population:** A reference group used for comparison. Appropriate standard populations may be external, national, or internal.

**Verbal autopsy:** A standardized tool to determine the likely cause of death by discussion with family and community members after the death.

### A. What is a Problem?

Problems may or may not exist, depending on the perceptions of decision-makers, health providers, and the broader community. Often cultural beliefs, traditions, education, and, especially, the lack of data may inhibit recognition of a problem. If no one thinks or perceives that a problem exists, then it does not exist as a problem in the minds of the health staff or communities. If the epidemiological data show that there is a problem, but there is no community concern about this issue, raising awareness may be the first step.

**A health problem must be defined both epidemiologically and from the community's perspective.**

A health problem is the difference or gap between what is observed (what is the reality in the local setting?) and what the selected standard population (what are the global or national figures?) has realized in terms of mortality or morbidity. Focusing on these gaps can help the program manager and stakeholders prioritize problems.

**A PROBLEM is a GAP between the way something is and the way we want it to be.**

### B. How is a Problem Defined?

Health problems need to be defined from both an epidemiological perspective (is there and excess of fetal-neonatal deaths?) and a community perspective (does the community consider fetal-neonatal deaths to be a problem?). Interventions based exclusively on either community concerns or epidemiological findings will not be effective in the long-term. Actual measurement of the magnitude of problems is needed to support feelings or opinions about major health issues within a specific population. Along with an examination of the medical causes of fetal-neonatal deaths, an assessment of the underlying cultural, social, and behavioral causes is also required.

The program manager may encounter many challenges, which may include multiple health and social problems, inadequate resources, and preset agendas by distant decision-makers.

Step 1 outlines how a program manager would collect and assess the data from the three sectors (informal/community, intersectoral, and formal) of the HCDS.

The aim of Step 1 is to achieve consensus among the program manager and key stakeholders as to whether newborn health is a problem and, if so, to identify the key local problems for newborn health.

- ❖ Is fetal-neonatal health a priority problem in the local setting?
- ❖ How much of a problem is there? (“Opportunity Gap”)?
- ❖ To whom, where, and when does the “Opportunity Gap” occur?
- ❖ What areas of the HCDS need to be assessed for performance in Step 2?

### C. How Can Data/Information Be Used to Define the Problem?

A program manager can only manager what they can count. Data and information are essential for good management.

**Without data, you are just another person with an opinion.**

The program manager and key stakeholders need to identify and examine the epidemiological data that already exist in their setting (i.e., birth weight, diagnosis based on clinical factors). Unfortunately, in many settings, very limited data are recorded about maternal and fetal-neonatal deaths. Most data are from health institutions, where many, if not most, maternal and fetal-neonatal deaths occur in the communities, where they are rarely recorded. Defining fetal-neonatal health problems in a given setting with little information requires a realistic, innovative, and cooperative approach. Although reliable data are scarce, some data are available in most countries. Unfortunately, the data available are not often used to identify and address the current situation for newborn health. Existing data can be helpful as long as their limitations are taken into account.

Four main actions are involved in collecting and transforming data into information to define a problem for newborn health (Table 3.2).

- Step 1 – Action 1. Collect and examine data.
- Step 1 – Action 2. Compare local data to a standard population.
- Step 1 – Action 3. Understand the “Opportunity Gap.”
- Step 1 – Action 4. Identify key problems to be assessed further in Step 2.

#### STEP 1 – ACTION 1.

#### Collect and Examine Data

There are three actions for collecting and examining data:

- Task 1.1* Review existing data
- Task 1.2* Collect key pieces of additional data
- Task 1.3* Change numbers into rates

#### STEP 1 - ACTION 1.

#### TASK 1.1

#### Review Existing Data

The first step is to have the stakeholders review the existing data (i.e., maternal, fetal-neonatal deaths). If possible, the data are collected from all HCDS sectors. Existing data are useful, but it is important to understand their limitations. For example, if hospital-based data are being used, it would be important to know approximately what percentage of deliveries are in hospitals. Also, are the women who deliver in a hospital of higher social status, are they at greater risk, or both? For example, using hospital-based data to estimate the LBW may result in an underestimate of only those women who delivery in institutions, or maybe an overestimate if many of the births in institutions are complicated deliveries. This information helps to assess whether the data are representative of the entire community.

**TABLE 3.2**  
**ACTIONS FOR IDENTIFYING THE PROBLEM FOR NEWBORN HEALTH**

<b>ACTION</b>	<b>TASK</b>	<b>COMMENT</b>
<b>Step 1 – Action 1:</b> Collect and examine data.	<p><i>Task 1.1:</i> Review existing data.</p> <p><i>Task 1.2:</i> Collect key pieces of additional data.</p> <p><i>Task 1.3:</i> Change numbers into rates.</p>	<p>Collect data from institutions, health service statistics, community records, vital registration, etc. The data can be collected by cause of death.</p> <p>Use the BABIES matrix to further investigate the cause of death.</p> <p>Depending on the cause, collect more data to examine the problem.</p> <p>Use the correct denominator for the data collected (or estimated denominator) to calculate basic rates, including:</p> <ul style="list-style-type: none"> <li>● late neonatal mortality rate;</li> <li>● low birth weight rate;</li> <li>● mortality rate for each cell of BABIES; and</li> <li>● mortality rate of each cause of death.</li> </ul>
<b>Step 1 – Action 2:</b> Compare local data to a standard population.	<p><i>Task 2.1:</i> Select a standard population for comparison</p> <p><i>Task 2.2:</i> Compare local data to the standard to identify the "Opportunity Gap."</p> <p><i>Task 2.3:</i> Compare local population with a standard using BABIES.</p>	<p>Standard population may be: 1) external, 2) national, or 3) internal.</p> <p>Once the standard population is identified, the BABIES matrix for the standard population can be compared to the local BABIES matrix to identify the "Opportunity Gap."</p> <p>In many settings, there will be excessive mortality for most causes of death/cells of BABIES, especially if an external standard is used.</p>
<b>Step 1 – Action 3:</b> Understand the "Opportunity Gap."	<p><i>Task 3.1:</i> Describe the "Opportunity Gap" according to who is affected, where, and why.</p> <p><i>Task 3.2:</i> Examine the root causes.</p>	<p>If a particular cause of death (i.e., neonatal tetanus) or cell of BABIES has an obviously large "Opportunity Gap," collect more data to see who is affected, where, and why.</p> <p>Further examine the root causes for the identified "Opportunity Gap." For example, are traditional practices related?</p>
<b>Step 1 – Action 4:</b> Identify key problems to be assessed further in Step 2.	<p><i>Task 4.1:</i> Come to a consensus with the key stakeholders about a problem that is a priority from an epidemiological and community perspective.</p>	<p>The problem may be a specific cause of death or one category of BABIES, including:</p> <ul style="list-style-type: none"> <li>● pre-pregnancy health;</li> <li>● care during pregnancy;</li> <li>● care during delivery; and</li> <li>● newborn care.</li> </ul>

The key pieces of information recorded in these documents include:

- ❖ for each death:
  - number of fetal and neonatal deaths;
  - time of death (fetal, neonatal);
  - cause of death, if available;
  - birth weight group (i.e., small, normal);
- ❖ newborn morbidity data, if available; and
- ❖ maternal deaths (numbers and causes).

Table 3.3 provides some examples of sources of existing data.

**TABLE 3.3**  
**SOURCES OF EXISTING DATA ON FETAL-NEONATAL HEALTH PROBLEMS**

<p><b><u>Institutional</u></b>            Delivery room logbooks.            Newborn ward logbooks.            Birth and death registers.            Obstetric theater records (# of C-sections).            Fetal-neonatal/pediatric admission records.</p> <p><b><u>District, regional level or national level</u></b>            Health reports.</p>	<p><b><u>Civil registration</u></b>            Birth registration.            Fetal-neonatal death registration.            Maternal death registration.</p> <p><b><u>Community level (less available)</u></b>            Records of village health workers.            Records of outreach clinics.            Surveys (i.e., Demographic Health Survey).</p>
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Source: Measure.

If the BABIES assessment tool (described in Part Two) is used, only two pieces of data are required initially (age at death and birth weight group). Reviewing the data in this manner allows the program manager and key stakeholders to record the magnitude of the situation and to prioritize other data to be collected.

Once the existing data are gathered and reviewed, it can be examined in many different ways. For purposes of this manual, two approaches are discussed below.

**Cause of death data:** The data can be reviewed by examining the cause(s) of death. This process would entail identifying the main clinical diagnosis, for example, neonatal tetanus. This information may be found in the logbook, case notes, or on the death certificate, if one exists.

**BABIES matrix:** The BABIES matrix can be used to help the program manager understand the distribution of the deaths. For example, are more small birth weight babies dying in comparisons to normal birth weight babies? It also helps to identify when the newborns are dying, such as during the first 24 hours after delivery. Cause of death can also be examined once the primary assessment using the matrix is done.

If cause of death data are available and reasonably reliable, the program managers can:

- ❖ use the cause of death data;
- ❖ use the BABIES matrix; or
- ❖ use some combination of the two approaches.

However, in many settings, including developed countries, the cause of death data may not be reliable because of the difficulties in differentiating between clinical conditions. Using the BABIES matrix to examine the existing data allows the program manager to target the problem by time period and birth weight group.

**STEP 1 - ACTION 1.**

**TASK 1.2** Collect Key Pieces of Additional Data

Because existing data are usually very limited, additional data, both qualitative and quantitative, will likely need to be collected. The purpose of collecting more data is to further the understanding of the process. The program manager and stakeholders should be selective in choosing the data to be collected. The data should be targeted to answer specific questions in order to make decisions. Collecting data that will not be used wastes time and money. Some suggested additional data are listed in Table 3.4.

**TABLE 3.4**  
**METHODS FOR COLLECTING ADDITIONAL TARGETED DATA TO DEFINE THE PROBLEM**

<b>TOOL OR METHOD</b>	<b>KEY INFORMATION COLLECTED</b>
Quantitative surveys.	Identify women of reproductive age and record outcomes of pregnancies and other characteristics/behaviors of the women.
Focus groups.	Identification and prioritization of problems by gender, age, etc.
Venn diagramming.	Subjective quantification of size of specific problems or performance of HCDS.
Verbal autopsies of fetal-neonatal deaths or near deaths.	More specific information as to cause of death (i.e., delay in access to care).
Flow charts for perceived causation.	Community perceptions of causation.
Historical timeline.	Variation of outcomes, risk factors, or resources with time.
Seasonality calendars.	Variation of activities, resources, coping strategies, outcomes, and risk factors with seasons.
Fishbone diagram.	To identify the root cause of the problem.

Source: WHO/CDS,CSR.

## STEP 1 - ACTION 1.

**TASK 1.3****Change Numbers Into Rates**

Before the data can be meaningfully compared, the raw numbers need to be assessed in relation to the total population in the area. This involves changing the raw data into a rate.

**TABLE 3.5**  
**REASONS FOR USING RATES**

In area A, there are 100 infant deaths among 20,000 live births. Thus, the infant mortality rate is five per 1,000 live births (100/20,000).

In area B, there are 100 infant deaths among 100,000 live births. The rate for this population is much lower at one per 1,000 live births (100/100,000).

Looking just at the raw numbers –100 infant deaths – one could make the mistake of thinking that the problems are about the same. However, when the rates are calculated, one can see that the problem is five times worse in Area A.

To calculate a rate, the program manager needs to know (or estimate) the population (i.e., total births); this value is the **denominator**. The number of events (i.e., neonatal deaths) is the **numerator**. If the data are collected at an institution, the denominator will be the number of births in the institution (total births for fetal or perinatal rates and live births for neonatal rates). In many settings, the denominator may not be known, especially if the data are collected at the community level. One solution to this problem is to estimate the denominator (discussed in the epidemiology section in Part Two).

Although there are many possible rates, the most important for neonatal health are (the formulas are given with the terminology for Part One):

- ❖ late fetal death rate (stillbirths);
- ❖ neonatal mortality rate (ideally split by early and late); and
- ❖ LBW rate.

Looking at rates may indicate the reliability of the data. If the LBW rate is high (greater than 15%) in a setting with no neonatal intensive care facilities, one would expect to have a high NMR (greater than 20 per 1,000 live births). If the LBW rate and the neonatal mortality rate is not very high, it may be that the data do not include LBW babies. In fact, these babies may not have been counted at all.

One can also look at the ratio of the late fetal deaths (22 weeks gestation) to early neonatal deaths (0-7 days of life). This ratio should be approximately 1-to-1 (i.e., the number of late fetal deaths should be approximately the same as the number of early neonatal deaths). If there is a great disparity with few fetal deaths, fetal deaths were probably not accurately counted in the data. If the data are reliable and there are more stillbirths than early neonatal deaths, there may be a particular cause of stillbirths, such as high incidence of maternal syphilis.

Even if the data are missing certain groups of babies (fetal deaths or LBW are the most common), some data are better than none. However, it is important to remember the limitations when using the data for decision-making.

**STEP 1 – ACTION 2.****Compare Local Data with a Standard Population**

After examining the data, the program manager may think that a problem exists. However, the program manager cannot be sure unless the local data are compared to a standard population. This involves three tasks:

- Task 2.1* selecting a standard population for comparison;
- Task 2.2* comparing local data to a standard population to identify the “Opportunity Gap” (the largest gap between local and standard data); and
- Task 2.3* comparing local population with a standard using BABIES.

The difference in rates (mortality and/or morbidity) between the selected standard population and the local population is a “*gap*” in health status. If the selected population has a better health status than the local population, this difference provides an “*opportunity*” for the local population to improve its health status.

An “*opportunity*” exists to enhance “fairness among the population” (i.e., improved access to services among marginalized groups) and reduce the “*gap*” in health status. In many situations, a large portion of the “Opportunity Gap” may be concentrated in one subpopulation (i.e., LBW babies, adolescent mothers) or with one specific cause of death (i.e., infection) that can be effectively targeted. To see if an “Opportunity Gap” exists, the program manager needs to select an appropriate standard population for comparison. The underlying question particularly for the internal standard is, If someone else has already done it, why can't we do it?

**TABLE 3.6**  
**USING A STANDARD POPULATION TO DETERMINE**  
**WHETHER THERE IS A PROBLEM**

If the neonatal mortality rate (NMR) in the district is 100 per 1,000 live births, you will not know if this is a problem, unless you compare this to a standard. If the NMR in Sweden is 3 per 1,000 live births, the “Opportunity Gap” is 97 per 1,000 live births (100-3).

It might be that Sweden is not the most suitable standard because of the difference in development resources. If data from the capital city of your country (selected standard population) shows that the NMR is 50 per 1,000 live births, the “Opportunity Gap” is at least 50 (100-50). Thus, a problem exists.

**STEP 1 - ACTION 2.****TASK 2.1****Select a Standard Population for Comparison**

There are three choices (Table 3.7):

- ❖ external standard (i.e., Sweden);
- ❖ national standard (i.e., subpopulation in capital city); and
- ❖ internal subpopulation standard within a geographical area (i.e., subpopulation in regional town or city).

**TABLE 3.7**  
**CHOICES OF A STANDARD POPULATION TO DEFINE THE “OPPORTUNITY GAP”**

	<b>EXTERNAL</b>	<b>NATIONAL</b>	<b>INTERNAL</b>
<b>Strengths</b>	Data most readily available, usually a developed country.  Describes the equity gap between countries.	Usually most acceptable (within the same country).  Can be used to identify the equity gap within a country.	May be the most appropriate.  May be the best means of identifying high-risk populations requiring intervention.
<b>Limitations</b>	Objections to using this standard arise because of the inequities in resources between countries (unattainable goals).	Usually represents data from socioeconomically advantaged populations in the country (may not be accepted by other groups).	Limited availability of data.  Program manager may not have the skills or resources to collect these data.

The types of standards are discussed in more detail in Part Two.

**STEP 1 - ACTION 2.**

**TASK 2.2**

**Compare Local Data to a Standard Population**

After the standard population is selected, the program manager can proceed with the epidemiological analysis. To do this, the local data are converted into a rate and compared with the chosen standard rate.

**STEP 1 - ACTION 2.**

**TASK 2.3**

**Compare Local Population with a Standard using BABIES**

Part Two described how to use BABIES to define the “Opportunity Gap.” In summary, the actions are as follows:

1. adapt the matrix to the local setting. Decide how BABIES would work best in the local setting in terms of how many rows (birth weight group) and how many columns (age at death) are needed;
2. collect data and plot the deaths into the matrix by age at death and birth weight group;
3. calculate the rates for each cell by dividing the number in each cell by the total births;
4. select a standard population; and
5. calculate the “Opportunity Gap.” Compare the rate for each cell or group of cells with the rates of the standard population to determine which cells have an excess mortality, or “Opportunity Gap.”

**STEP 1 – ACTION 3.****Understand the “Opportunity Gap”**

For many settings in developing countries, there will be an “Opportunity Gap” for many of the cells in the BABIES matrix. The group of cells within the BABIES matrix with the biggest gap is not necessarily the key area in which to intervene. The “Opportunity Gap” needs to be examined further to:

- ❖ describe the “Opportunity Gap” according to who is affected, when, and why; and
- ❖ understand the underlying causes contributing to fetal-neonatal deaths.

**STEP 1 - ACTION 3.****TASK 3.1****Describe the “Opportunity Gap” According to Time, Person, Place**

It is important to identify whether:

- ❖ a particular group of babies or mothers is at risk (who?);
- ❖ babies in a certain location are at risk (where?);
- ❖ the condition changes with time, such as seasonal changes (when?); and
- ❖ there are obvious risk factors, such as harmful traditional practice (why?).

To refine understanding of the “Opportunity Gap,” several pieces of additional data are needed. This issue is discussed further in Part Two under epidemiology and BABIES. Table 3.8 outlines the key questions to ask and the key pieces of required data.

**TABLE 3.8**  
**QUESTIONS TO FURTHER UNDERSTAND THE “OPPORTUNITY GAP”**

	QUESTION	DATA TO BE COLLECTED	POSSIBLE DATA COLLECTION METHOD
<b>WHO?</b>	<b>Who is affected?</b> Compare different groups of people.	Personal characteristics such as: <ul style="list-style-type: none"> <li>• Socioeconomic status.</li> <li>• Education.</li> <li>• Ethnicity.</li> </ul>	Village health worker records. Community-based surveys. Verbal autopsies. Hospital records.
<b>WHERE?</b>	<b>Where do they die?</b> Compare by geographical location.	One village/region compared to another. Home compared to hospital. Type of facility.	Maternity/labor logbook and inpatient records. Community-based survey. Death certificates if these are reliable locally.
<b>WHEN?</b>	<b>When do they die?</b> Compare changes over time (i.e., years, seasons).	Number of deaths per month, year.	Community monitoring board or other adaptations of BABIES. Village health worker records. Verbal autopsies in the community. Hospital records. Regional records, i.e., for tetanus if this is reported.
<b>CAUSE?</b>	<b>What is the cause?</b> Identify specific medical causes, if this information is available.	Causes of death, such as: <ul style="list-style-type: none"> <li>• Asphyxia.</li> <li>• Infections, such as tetanus or sepsis.</li> <li>• Jaundice.</li> <li>• Birth defects.</li> </ul>	Verbal autopsies in the community. Institutional data on cause of death. BABIES can direct the program manager to a particular cell where certain causes are more likely. This allows the program manager to focus attention on examining these causes.
<b>WHY?</b>	<b>Why are they affected?</b> (Root cause) Identify underlying risk factors.	Age of mother/parity/birth interval. Harmful traditional practices.	Analysis of existing data, i.e., from hospital records. Verbal autopsies. Focus groups of health care staff and community members.

## STEP 1 - ACTION 3.

**TASK 3.2 Understand the Underlying Causes Contributing to Fetal-Neonatal Deaths**

Many fetal-neonatal deaths involve social, environmental, and economic causes, such as harmful traditional practices, lack of transportation, or lack of resources. All of the causes need to be identified. Since sick newborns may die if not treated quickly, it is important to identify the key barriers contributing to lack of access to care.

There are four main delays that inhibit pregnant women and newborns from accessing services in a timely manner:

- ➔ *Delay #1: Delay in problem recognition;*
- ➔ *Delay #2: Delay in deciding to seek care;*
- ➔ *Delay #3: Delay in reaching the health facility; and*
- ➔ *Delay #4: Delay in receiving quality treatment at the health facility.*

These delays are discussed in Part One and potential solutions are discussed in Part Four.

A useful tool to examine the underlying causes of a problem is the fishbone diagram, also called the “But why?” diagram. To complete a fishbone diagram, a program manager can follow these four stages (described in Part Two).

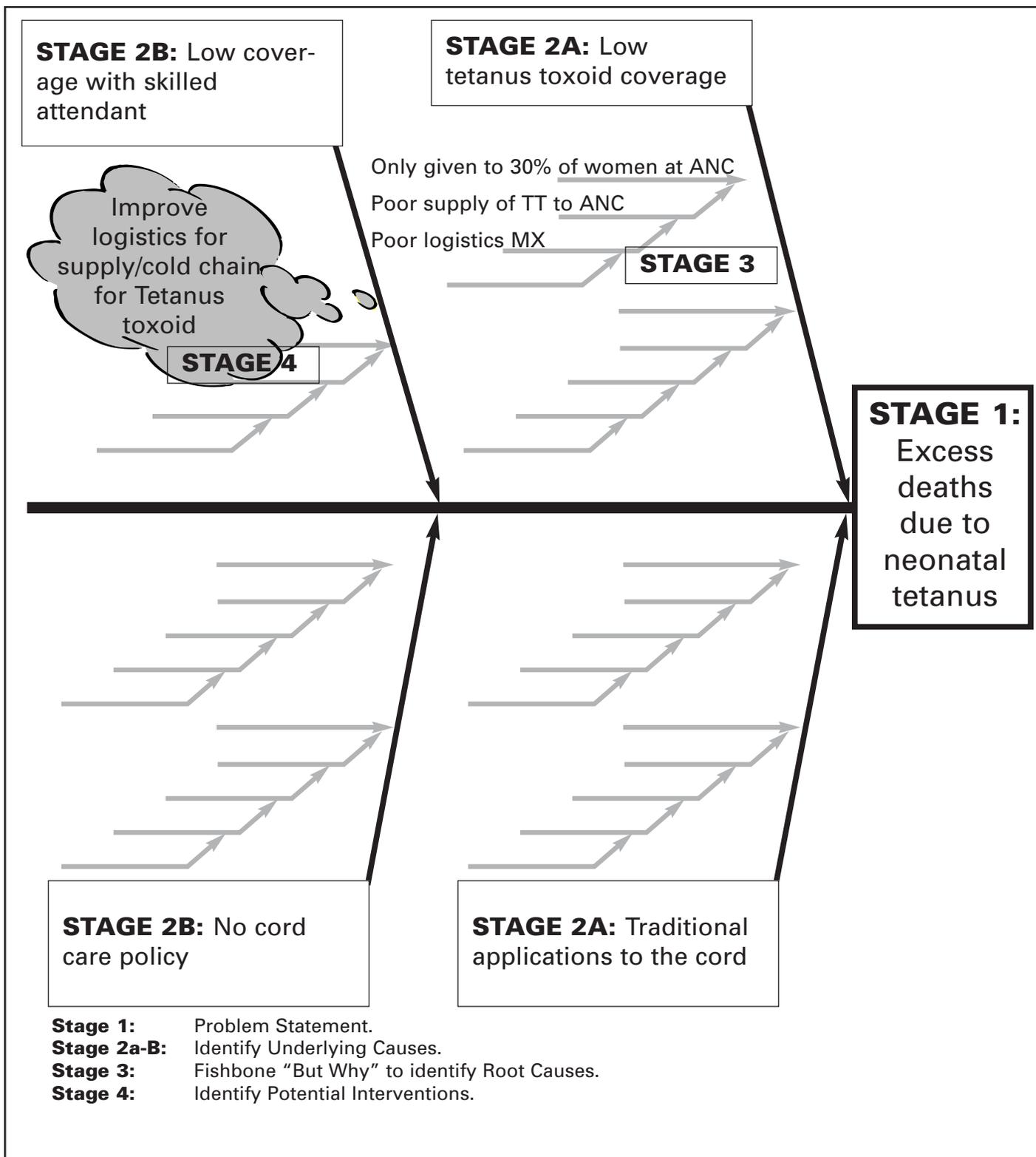
**Stage 1 – Problem Statement:** The identified problem is put at the “head” of the fish (Figure 3.2).

**Stage 2 – Identify the Underlying Causes:** The underlying causes are put into the four boxes.

**Stage 3 – Ask “But Why” to Identify Root Causes:** Questions are a method of performance assessment which will be discussed in Step 2 in more detail. Answers require examination of quantitative or qualitative data, or they may be common knowledge (i.e., a given traditional practice).

**Stage 4 – Identify Potential Interventions:** At any point, if a problem is identified as having an actionable solution, the solution can be marked next to the fishbone, as presented in Figure 3.2. Once actionable steps/interventions are identified, then current performance of these services can be assessed in Step 2. The actionable step/intervention can also be inserted into the head of the counter measure matrix to assess the feasibility, as described in Part 2.

**FIGURE 3.2**  
**THE FISHBONE DIAGRAM USED TO UNDERSTAND THE ROOT CAUSE OF NEONATAL TETANUS**



**STEP 1 – ACTION 4.****Identify the Key Problems to be Assessed in Step 2**

In many low-resource settings, fetal-neonatal deaths from almost every cause may be excessive as compared to those in a standard population. However, no program can address all of these problems at once. One problem or a group of related problems must be prioritized. This prioritization process (outlined in Figure 3.3) requires dialogue between the program manager and stakeholders as well as a review of information combined from quantitative data and stakeholders' perceptions. The key problem is prioritized in Step 1 and the “right intervention” and strategies to address the problem are discussed in Step 3.

In terms of quantitative data, the most important problem is the one with the highest attributable risk (described in Part Two). Attributable risk measures the effect of the condition on the population. This means that it is a measure of the amount that the outcome (fetal-neonatal deaths) can be attributed to a certain problem (i.e., neonatal tetanus). There are two factors that influence the attributable risk of a problem.

**Severity:** Severity refers to the likelihood of death. The epidemiological term is relative risk (described in the epidemiology section). For example, neonatal tetanus has a case fatality rate of 90 percent, which means that out of 100 newborns with neonatal tetanus, 90 die. Hence, even if neonatal tetanus has a low frequency within the population, it may account for many deaths because of its high severity.

**Frequency:** Frequency refers to how common the condition is in the population. The epidemiological term is prevalence (described in the epidemiology section). For example, in Bangladesh 30 percent of newborns weigh less than 2500 grams. Thus, even though low birth weight does not have a high severity (as compared above), it is very common in the population, so it may account for many deaths.

Attributable risk measures the combination of severity and frequency. Some conditions, such as neonatal asphyxia or neonatal sepsis, are important because they are both frequent and severe. Other conditions are important because they are either very common or very severe. An appreciation of the importance of rare conditions that are severe, or nonsevere conditions that are common, will help the program manager identify which cause of death is epidemiologically important in the local setting.

The views of the stakeholders are crucial in selecting a problem category. If a specific condition is responsible for the most deaths, but the stakeholders are not concerned about it (i.e., LBW), it may be better to choose another problem that does elicit widespread concern.

If BABIES is being used, by the end of Step 1, the program manager and stakeholders will have identified the key problem areas or gaps in their setting to be one of the following:



pre-pregnancy health;  
care during pregnancy;  
care during delivery; and  
newborn care.

Step 1 is useful in focusing the problem areas to one of the four time periods. This process helps the program manager and key stakeholders focus on the key services to be reviewed in Step 2 – assessing the performance of the HCDS. Assessing the whole HCDS for every time period would be costly and impractical.

#### **D. How Can the Key Stakeholders Participate in Defining the Problem?**

The reason to involve the stakeholders is to foster ownership of the problem. In many communities with high rates of fetal-neonatal and maternal mortality, there will be other major social, economic, and health problems that may be perceived as more important to the community. People may feel that no problem exists—that it is normal for neonates to die. There are many methods to involve stakeholders in the process. More details are provided under Step 3b. A few suggestions follow.

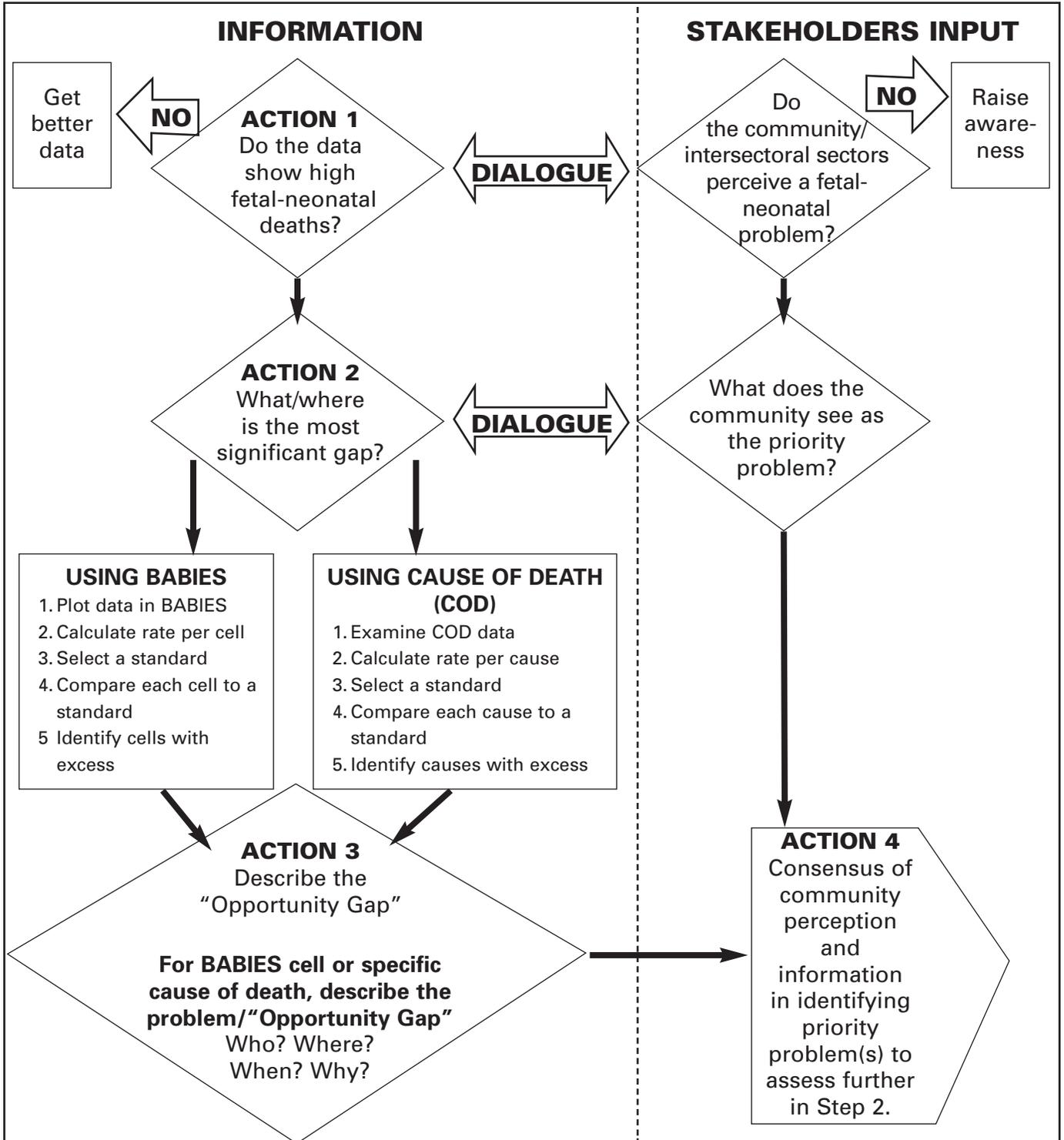
**The informal/community** sector may be involved through participation in community meetings, stakeholder meetings, focus group discussions, discussions of formal health system data (review of log books, etc.), and by providing information about specific fetal and neonatal deaths (verbal autopsies).

**The intersectoral** sector may be involved through participation in community meetings, stakeholder meetings, focus group discussions, discussions of formal health system data (review of log books, etc.), and by providing information on upcoming projects that they may undertake (building roads, bridges).

**The formal sector** may be involved through the analysis of service statistics, review of key documents (case notes, supervision records), participation in stakeholder meetings and focus group discussions, by providing information on upcoming activities, and by participating in discussions of the formal health system data (review of log books, etc.). The personnel in the formal sector will also be responsible for collecting new data and for sharing the new results with other sectors.

**STEP 1** **DEFINE THE FETAL-NEONATAL HEALTH PROBLEM**  
**SUMMARY**

**FIGURE 3.3**  
**SUMMARY FOR STEP 1, DEFINING THE FETAL-NEONATAL HEALTH PROBLEM**



**STEP****1****DEFINE THE FETAL-NEONATAL HEALTH PROBLEM****SUMMARY****What is a problem?**

A problem is the existence of a gap between the way something is and the way we want it to be. Without data, this is just an opinion. The problem has to be identified both by epidemiological data and by the community.

**Was the appropriate information collected, reviewed, and used to define the problem?****Action 1 Collect and examine the data.**

Review existing data, either in terms of cause-specific problems or using BABIES to identify a category of problem (i.e., care during delivery).  
Collect selected pieces of new data.  
Change raw data into rates.

**Action 2 Compare local data with a standard population.**

The “Opportunity Gap” is the difference in rates (mortality and/or morbidity) between populations in health status. If one population has already achieved a better health status than the other, the difference also provides an opportunity to improve the status of the less healthy population – this is called the “Opportunity Gap.”

**Action 3 Understand the “Opportunity Gap” in the local setting.**

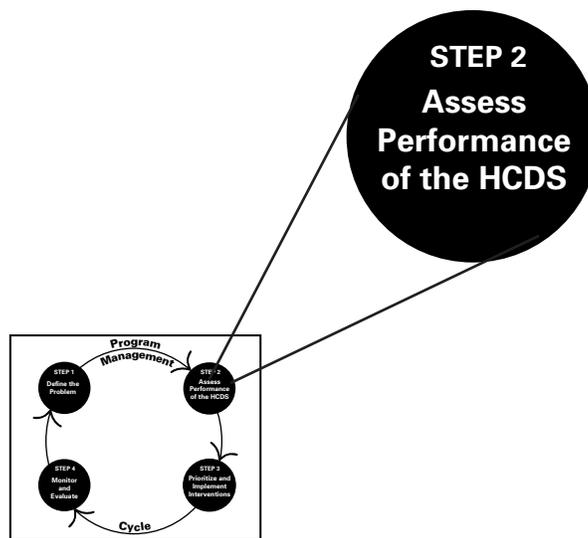
Understand the gap in terms of time, person, and place. Examine the root causes, possibly using the fishbone diagram.

**Action 4 Identify the key problems to be assessed further in Step 2.****KEY QUESTIONS**

- ☞ Is fetal-neonatal health a priority problem in the local setting?
- ☞ Redefine the problem in terms of categories (pre-pregnancy health, care during pregnancy, care during delivery, newborn care) or specific causes, like neonatal tetanus.
- ☞ What is the extent of the problem (“Opportunity Gap”)?
- ☞ Is there an explanation for the “Opportunity Gap” (Who, Where, When, Why)?
- ☞ What is the root cause for the priority problem? Use the fishbone/But why? diagram to identify the root cause.
- ☞ What areas of the HCDS need to be assessed in Step 2?

**Were the key stakeholders involved in defining the problem?**

- ❖ Informal/community
- ❖ Intersectoral system
- ❖ Formal health care system

**STEP****2****ASSESS PERFORMANCE OF THE HEALTH CARE DELIVERY SYSTEM**

- A. Summary of Step 1
- B. What is Performance Assessment?
- C. How is Performance Assessment Done?
- D. How Can Data/Information be Used to Assess Performance?
- E. How Can Key Stakeholders Participate in Performance Assessment?

Summary of Step 2



# TERMINOLOGY FOR PART THREE

## STEP TWO

**Capacity:** The ability to fulfill a given role in a given setting. The term may be applied to individuals but is more commonly applied to institutions or organizations. Capacity may apply to a variety of roles – technical, logistical, etc.

**Effectiveness:** The ability to undertake the right interventions to produce a desired result.

**Efficiency:** The ability to do interventions in the right way, so that high-quality services result.

**Performance assessment:** A process that enables the program manager and stakeholders to assess the effectiveness and quality of interventions.

**Right intervention:** An intervention that can produce the desired result for a given problem in a given population.

**Right way:** Implementing an intervention as intended and efficiently, resulting in high-quality services.

## A. Summary of Step 1

During Step 1, the program manager and stakeholders identified the key problem areas or gaps in their setting. The problem was identified in terms of a specific cause of death, such as neonatal tetanus. If the cause of death data are limited and BABIES was used, the problem was identified in terms of one of the following key categories:



pre-pregnancy health;  
care during pregnancy;  
care during delivery; and  
newborn care (essential, emergency, extra).

Step 2 identifies how resources (financial, human, and material) are allocated and used with respect to the key problem identified in Step 1. Performance assessment (Step 2) enables the program manager and key stakeholders to decide which core services are required to address the given problem in their setting. Do these services exist, and if so, are they being implemented efficiently? Inappropriate or inefficient use of resources will reduce the number of newborn lives saved. This assessment can also identify the community's satisfaction with the quality of the services provided.

## B. What is Performance Assessment?

There are two components of performance: effectiveness and efficiency. A system can be effective (right intervention) but inefficient (poor quality) or ineffective (wrong intervention to achieve the desired result) but efficient (high quality). Neither scenario will have a significant impact on reducing neonatal mortality. Capacity is an intrinsic component of performance; without some level of capacity (skills, knowledge, attitudes, and resources), good performance is unlikely.

**Effectiveness:** The ability to undertake the right interventions to produce a desired result.

**Efficiency:** The ability to do interventions in the right way, resulting in high quality services.

Evidence-based standards are essential for the provision of high-quality effective services. However, developing these standards and protocols can be very time-consuming. The World Health Organization and JHPIEGO, in collaboration with a large group of international experts, produced the Managing Complications of Pregnancy and Childbirth (MCPC) Guidelines, which are referenced in this manual and accessible on the attached CD-ROM. Program managers can adapt these guidelines to their own settings. These standards provide a measure to assess performance if national guidelines are not yet present in a particular country. Even if standards are in place, they may not be applied for many reasons.

### C. How is Performance Assessment Done?

The performance assessment requires the program manager and stakeholders to answer several key questions, which include:

**What is supposed to be happening in the HCDS?**

**What do people think is happening in the HCDS?**

**What do people say is happening in the HCDS?**

**What is actually happening in the HCDS?**

To answer these questions in the three sectors of the HCDS, the program manager must complete the three actions presented below.

**Step 2 – Action 1:** Determine what the core/basic services are to address the problem identified in Step 1. This should include defining the standard of care expected at each level of the HCDS.

**Step 2 – Action 2:** Assess the existence of these basic services. (coverage of services).

**Step 2 – Action 3:** Assess the quality of the basic services.

This approach begins with the key problem area identified in Step 1, examining the main components of the intervention areas, and assessing the capacity and quality of each component.

#### STEP 2 – ACTION 1.

#### Determine the Core/Basic Services

Before assessing what is in place, the program manager must know what is needed (the right thing) to address the problem identified in Step 1. In order for the program manager to do this, there are three tasks that need to be undertaken: 1) identifying the main problem area; 2) identifying the core/basic services to address the problem area; and 3) articulating a standard of care for those core/basic services.

#### STEP 2 - ACTION 1.

##### TASK 1.1

##### Identify the Main Problem Area

The main problem area(s) to address the problem identified in Step 1 need to be articulated, which may include pre-pregnancy care, care during pregnancy, care during delivery, and post-partum care/newborn care.

## STEP 2 - ACTION 1.

**TASK 1.2 Identify the Core/Basic Services Within the Problem/Intervention Areas**

Once the main gap is selected, for example pre-pregnancy care, the core/basic services needed to address this gap need to be articulated based on a standard of care. For example, the core/basic services for pregnancy care include family planning, maternal nutrition, and prevention and treatment of STIs among women of reproductive age.

## STEP 2 - ACTION 1.

**TASK 1.3 Articulate the Standard of Care for the Core/Basic Services**

If in the local setting, the main gap was during the pre-pregnancy time period, then the Pre-pregnancy Health Intervention Package would be the most appropriate to address the gap. The package components (core services) of the Intervention Package would be family planning, nutrition, and prevention and treatment of STIs. Once these categories have been established, then the questions becomes *What is the standard of care?* For example, the standard of care for family planning services may include that women need to receive accurate information on all methods to make an informed choice on a daily basis. Once there is a clear understanding of the standard expected of the service, then the services can be assessed. For example, if the family planning services are assessed and services are not available every day, then the standard of care has not been met.

One way of helping the program manager and stakeholders think about how to prioritize the various interventions that can be implemented is the Spider Web Framework developed by CARE. This framework aims to serve three main purposes, which include:

- ❖ fostering a way to think of maternal and newborn health programs in a comprehensive, inter-related way;
- ❖ facilitating the use of key Intervention Packages that can effectively address maternal and/or neonatal health outcomes; and
- ❖ prioritizing services within the Intervention Package(s) in terms of levels of development.

Based on the Pathway to Survival (Figure 1.8), which highlights the inter-relatedness of maternal and newborn outcomes, the Spider Web Framework (Figure 3.4) attempts to provide a way to look comprehensively at Intervention Packages, addressing both the mother and the newborn. With that said, the Intervention Packages can be examined individually as well as in terms of their overall objectives and specific package components which are further discussed in Part Four. Lastly, the Spider Web Framework tries to help program managers, who work in very resource constrained situations, understand some of the first things they should do to address fetal and neonatal mortality, despite their many challenges. Thus, the Spider Web Framework is broken down into three main service areas within each Intervention Package. These services include:

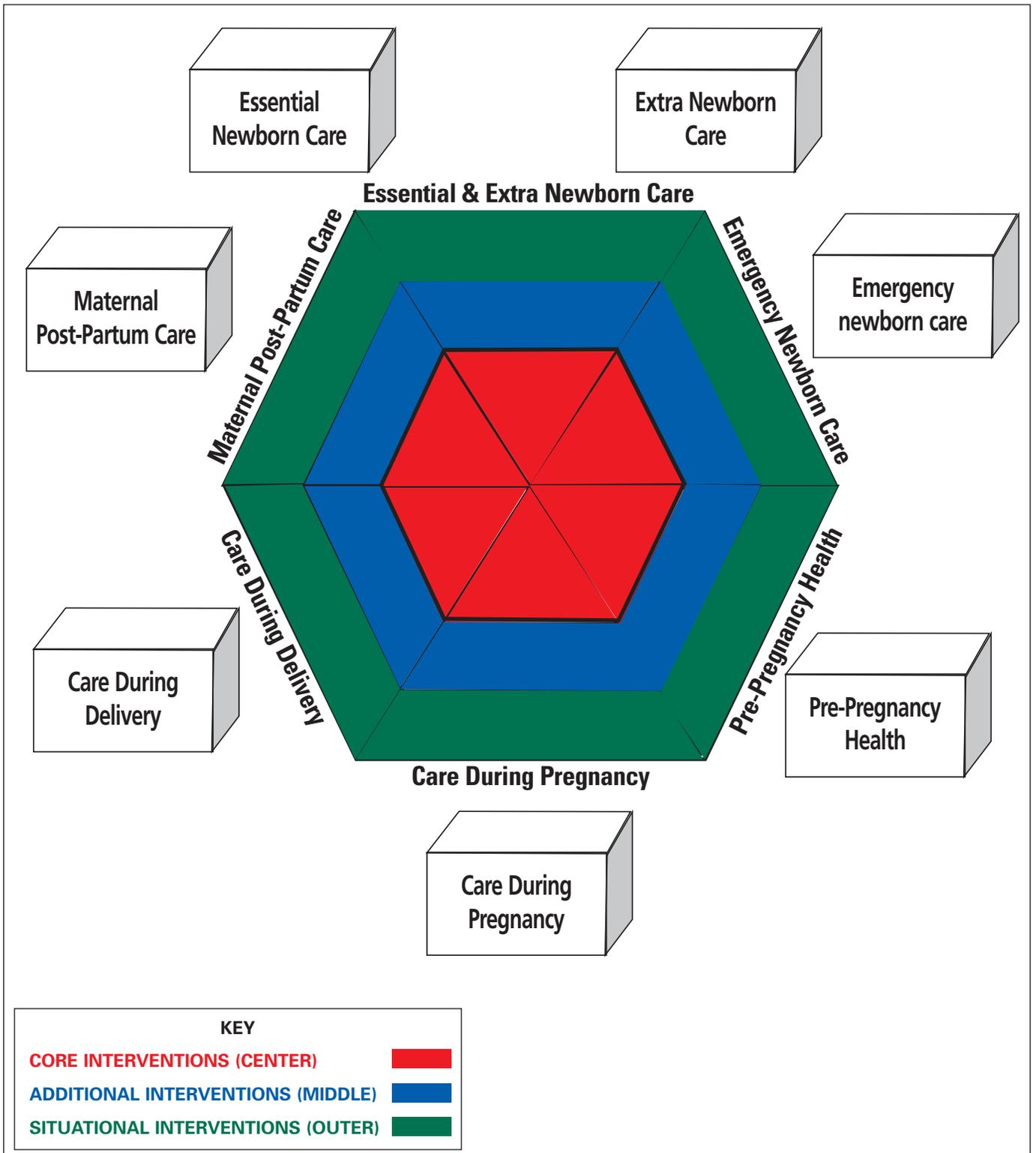
- ❖ core services;
- ❖ additional services; and
- ❖ situational services

The core interventions are the basic services that should be available in all settings for that package. The additional interventions may be added as local capacity and resources increase. The situational interventions are appropriate in a given situation but not in all settings. For example, if malaria is endemic locally, presumptive treatment of malaria in pregnancy is important. However, this guideline does not apply to a setting where malaria is not endemic.

The details in Part Four aid in deciding what core services would be appropriate in the setting to address the chosen priority problem. If the identified problem is due to a specific cause of death, more information for the major causes of newborn deaths (listed below) can be found in Part Four.

- ❖ Severe infections.
- ❖ Neonatal tetanus.
- ❖ Birth asphyxia.
- ❖ Birth defects.
- ❖ Jaundice.
- ❖ Extra care of the LBW baby.

**FIGURE 3.4**  
**A WEB OF INTEGRATED INTERVENTION PACKAGES BY TIME PERIOD**



**STEP 2 – ACTION 2.****Assess the Existence and Coverage of Core/Basic Services**

Once the core/basic services are selected for the identified problem, the question becomes, *Is the right thing (the standard) being done? or Do the required services exist?*

If the services do not exist, it is not possible to carry out Action 3 (Assess Quality). Furthermore, Step 3a, which focuses on prioritization of interventions, is answered because the priority is to establish the basic services to resolve the identified problem.

If these services do exist, it is important to know how much of the population the services are reaching. If syphilis testing and treatment are in place but reaching only five percent of the population, and possibly those least affected, it will have little impact on newborn outcomes. If skilled birth attendants are available but only 20 percent of the population are delivering with a skilled attendant, it is crucial to understand why this is happening.

Data are required to assess coverage of health services. There may be existing data, but in many cases, the required information will not be available. In this situation, try to use what is known to make an estimate, or administer a survey to collect the necessary data. Part Two gives suggestions on using available data to make estimates and selective collection of new data. An example of the use of data to assess performance of the HCDS is provided in Table 3.9.

**TABLE 3.9**  
**PERFORMANCE ASSESSMENT: CARE DURING PREGNANCY EXAMPLE**

The identified priority problem area was care during delivery.

The standard agreed upon was to screen all women for syphilis at antenatal care (ANC) and to provide free treatment for all positive women with partner tracing.

The collected information for the performance assessment is summarized below.

- ANC records showed that about 65 percent of pregnant women attended at least one antenatal visit (the denominator was estimated by using the method in the epidemiology section in Part Two).
- ANC records showed that less than 10 percent of women received syphilis testing.
- Laboratory records showed that 15 percent of the pregnant women tested for syphilis were positive.
- Review of syphilis-testing records and pharmacy prescription records revealed that only half of those who tested positive received treatment.

The fishbone diagram was used (see Part Two) to examine the underlying causes. Interviews with the staff and women revealed that the underlying causes were inadequate stocks of testing supplies and penicillin and poor follow-up of women who tested positive.

**STEP 2 – ACTION 3.****Assess the Quality of the Services**

*Are the right services being provided in the right way?* This question applies to communities, not just institutions. For example, if birth planning/preparedness is a core service and is provided, the next question is how well is it being implemented? Attention to quality of care is essential to the success of any intervention. High-quality health services may appear beyond the resources of most developing country settings. However, program managers cannot afford to ignore quality issues. Improving quality often pays for itself in terms of greater efficiency and improved outcomes.

Standards are an essential part of promoting quality care. If standards are not in place or not well understood, then anything can happen. In order to assess quality, the manager needs to determine how well each of the three HCDS components (informal, formal, and intersectoral) are performing with regard to the standards. The methods and tools used will depend upon the services being assessed and the local setting. An integrated health-facility assessment for child survival developed by BASICS is available on the CD-ROM and could be adapted for newborn health assessments BASICS. The WHO Safe Motherhood Needs Assessment and other materials are provided on the CD-ROM.

In Table 3.10, an example is given of how performance of the HCDS is assessed in the three sectors of the HCDS.

**TABLE 3.10**  
**ASSESSING PERFORMANCE OF THE HCDS SECTORS: EXAMPLE OF CARE DURING DELIVERY**

	<b>INFORMAL/ COMMUNITY</b>	<b>INTERSECTORAL</b>	<b>FORMAL</b>
<b>What is supposed to happen?</b> (Protocols/clinical standards, administrative procedures)	TBAs are supposed to accompany women to the health center/hospital for delivery.	A particular road, which is crucial for access to emergency obstetric care, is supposed to be in good condition.	The doctor is supposed to be at the facility 24 hours a day.
<b>What do people think is happening?</b>	Some women are sent to the hospital if they develop complications.	The local development officer thinks that the road is passable except in the worst part of the rainy season.	The doctor is there most of the time.
<b>What do people say is happening?</b>	TBAs ask for their money up front and then deliver the baby at home.	The road is passable for about half the year, with difficulty.	The doctor is gone after 8 p.m. to his private clinic.
<b>What is actually happening?</b>	TBAs don't want to refer women because they will lose money.	None of the buses or taxis will drive on the road because it is in such bad condition.	Doctor is gone after 2 p.m.

Interventions to enhance quality are most effective when all of the health personnel and the community have an active part in defining what quality means for them and how they might achieve it. Part Two contains a further explanation of quality management principles and tools to assist the program manager in developing and implementing sustainable approaches for improving quality. The fishbone/“But why?” diagram is especially useful in examining root causes for poor performance. For example, poor monitoring of women in labor may be due to not using the partograph. The reason for this may be the lack of available copies of the partograph, despite training of the staff. The results of the fishbone is very useful in identifying potential solutions.

Table 3.11 provides some tools that can be used to foster performance assessment of the HCDS.

**TABLE 3.11**  
**TOOLS TO ASSESS PERFORMANCE IN HCDS**

<b>TOOL OR METHOD</b>	<b>KEY INFORMATION COLLECTED</b>
Health facility assessments.	Appropriateness of site; presence of equipment, drugs.
Interviews/observation of staff.	Training, skill, and attitudes of staff.
Case reviews/audits.	Are standards of care being implemented for emergencies?
Exit interviews.	Quality of information given to clients; client satisfaction with the approach of the caregiver.
Resource mapping.	Resources available in the community and at all levels to respond to the identified problem.
Social mapping.	People of influence and social relations who may facilitate or obstruct performance.
Household interviews.	Used to collect many types of information; for performance assessment, they may be used to evaluate traditional practices.
Fishbone/But why? diagram.	To assess underlying reasons for poor performance.

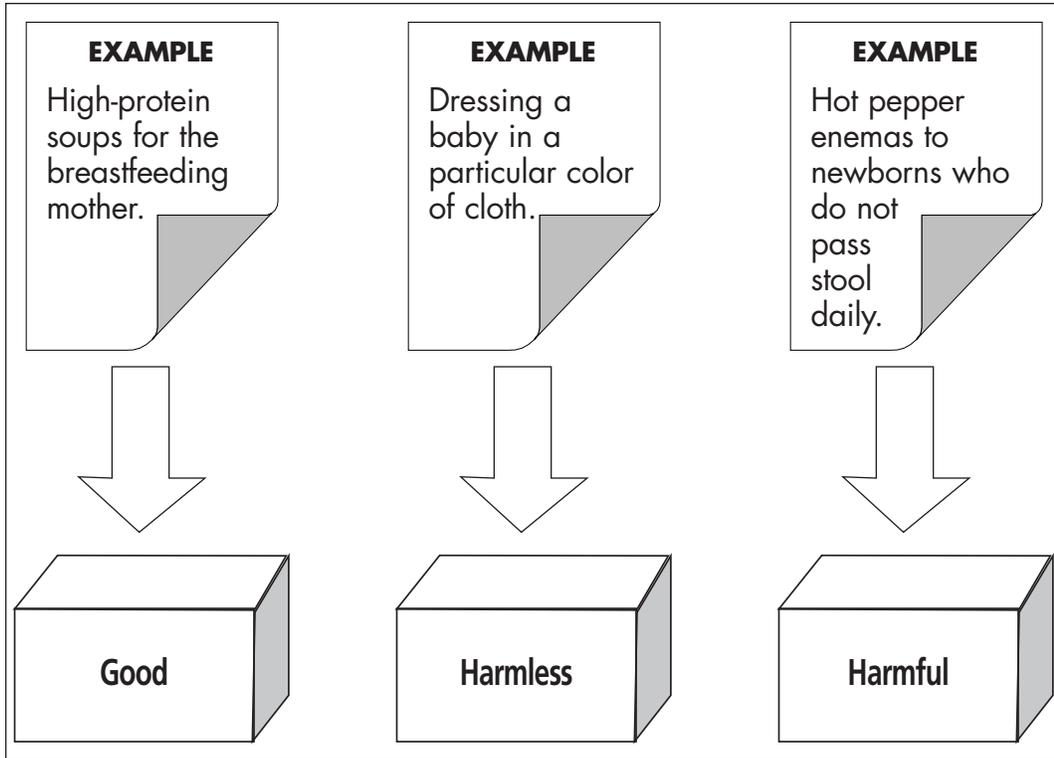
#### **D. How Can the Key Stakeholders Participate in Performance Assessment?**

The stakeholders helped identify important problems in Step 1. They may have opinions about what is being done, or not done, to resolve these problems and have their own opinions of the current HCDS performance.

**The intersectoral sector:** In the intersectoral sector, authorities may be unaware of the needs for input to improve newborn or maternal outcomes. For example, there may be a need to improve the surface on a crucial road that leads to the only provider of emergency obstetric care in a given region.

**The formal health care sector:** There are many factors that influence performance in the formal sector, including poor pay and lack of supervision and motivation. Good performance may go unnoticed or even be punished. For example, a pregnant woman may be criticized for calling attention to her problems, or a health care worker may have to work longer hours after recognizing a problem.

**FIGURE 3.5**  
**ASSESSING TRADITIONAL PRACTICES**



**The community or informal sector:** To understand local beliefs and practices, a careful assessment of pregnancy, childbirth, and fetal-neonatal care is important. There are many approaches to collecting information on health beliefs and practices, including participatory approaches, case studies, verbal autopsies, and other social science methodologies. It is important to recognize that not all traditional practices are “bad.” Some are of great benefit, and others are likely to be harmless. Identifying and reinforcing beneficial practices can help empower the community to alter harmful practices. To prioritize the harmful practices, they must first be recognized. Figure 3.5 shows a simple way to do this. Write down all of the common local practices and file each in one of three boxes (good, harmless, or harmful, depending on the impact on mothers and newborns).

The community assessment should also consider potential resources to deal with the identified newborn health problems. For example, if transportation for mothers or newborns with emergencies is identified as a problem, community funds could be used to provide emergency loans.

**STEP****2****ASSESS PERFORMANCE OF THE HEALTH CARE DELIVERY SYSTEM****SUMMARY****Why and how to assess performance?**

Performance matters. The only way a system operates effectively and efficiently is for quality to be a priority. Quality is not expensive; the lack of it is.

Performance assessment is an evaluation of the effectiveness and efficiency of current interventions and strategies to address the priority problem. Are the right things being done? Are they being done right?

**Was the appropriate information collected, reviewed, and used to assess performance?**

- |                  |  |
|------------------|--|
| <b>Action 1.</b> | Decide what the core/basic services are to address the problem.<br>What is the right thing to do?  |
| <b>Action 2.</b> | Assess the coverage of the basic services.<br>Is the right thing being done? Do basic services exist and what proportion of the population do they serve?  |
| <b>Action 3.</b> | Assess quality of the services.<br>Is the right thing being done right?<br>There are many tools to use including integrated health facility assessments, exit interviews with clients, and the fishbone diagram to identify underlying causes. |

**Were the key stakeholders involved in performance assessment?**

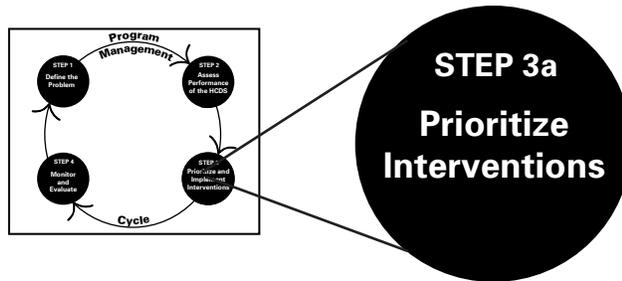
The community, formal health care system, and intersectoral stakeholders should be actively involved in assessing the performance of their own sector, as well as the performance of the formal health care sector. Traditional practices related to the priority problem should be examined.

- ❖ What is supposed to happen?
- ❖ What do people think is happening?
- ❖ What do people say is happening?
- ❖ What is actually happening?

STEP

3a

## PRIORITIZE INTERVENTIONS



- A. Summary of Steps 1 and 2
- B. What is Prioritization?
- C. How to Prioritize Interventions.
- D. How Can Data/Information be Used to Prioritize Intervention Packages?
- E. How can Key Stakeholders Participate in the Prioritization of Interventions?

Summary of Step 3a.



# TERMINOLOGY FOR PART THREE

## STEP THREE A

**Attributable risk percentage:** An epidemiological measure regarding a given condition, showing how much of the outcome occurring in the population is due (attributable) to that condition. The magnitude of the attributable risk percentage of a condition is related to both the severity of the condition and how frequently it occurs. For example, neonatal tetanus may be relatively rare, but if 90 percent of cases die, it may account for 30 percent of neonatal deaths in a given setting.

**Countermeasure matrix:** A quality assessment tool that uses a matrix to help team members show the relationship among the problem statement, root causes, and countermeasures.

**Prioritization:** A process whereby potential interventions are reviewed to select the most effective, feasible, and acceptable ones.

### A. Summary of Steps 1 and 2

At this point in the program management cycle, the program manager and stakeholders have:

- ❖ identified the problem areas (i.e., care during pregnancy);
- ❖ agreed upon core services with regard to that area (i.e., four visits for antenatal care, anemia treatment, address syphilis and malaria, birth planning);
- ❖ assessed that the interventions are the right interventions to address the defined problems and the level of service coverage; and
- ❖ evaluated whether the right services are being done in the right way (quality).

### B. What is Prioritization?

There are many interventions that are effective for reducing both maternal and neonatal mortality, but these cannot all be implemented at once. While the final goal is to establish a complete system with all of the key services and interventions working well, this must be achieved gradually. It is important to start with the interventions that will have the greatest effect on newborn (and maternal) survival locally, but they should also be the most feasible. The priorities may vary from one setting to another.

For example, birth asphyxia may be the biggest problem for newborn health in Areas A and B. The main interventions to reduce birth asphyxia are better care during delivery and competency in newborn resuscitation. If the skilled birth attendant coverage in Area A is only 15 percent and there is no emergency obstetric care, the priority would be to improve basic care and access to emergency care during delivery. In Area B, 80 percent of women deliver with skilled providers, emergency obstetric services are good, and the cesarean section rate is eight percent. Thus, Area B might focus on introducing standards for newborn resuscitation and competency-based training.

Prioritization is a process whereby the core services that can address the problem are reviewed to select the key interventions that will have the greatest effect on the problem, yet be feasible and acceptable. This is the *right* intervention, which will be the most effective in the setting. Once the right interventions have been selected, appropriate strategies (*the right way*) can be developed to maximize the effectiveness of the interventions.

To target priority problems, the program manager must answer two key questions:

*What is the right intervention to address this problem in my setting? Which intervention will make the most difference to my problem and also be feasible in my setting?*

*How can I implement this intervention in the right way? Who will do what and where and how? Can I target my strategy to a particular place or group (i.e., adolescents, LBW babies)?*

Table 3.12 provides some examples of what the program manager and stakeholders may have found in Steps 1 and 2.

**TABLE 3.12**  
**EXAMPLES OF RESULTS FROM STEPS 1 AND 2**

<b>PROBLEM AREA/ INTERVENTION PACKAGE</b>	<b>RIGHT INTERVENTIONS CORE SERVICES</b>	<b>ARE THE RIGHT SERVICES IN PLACE?</b>	<b>RIGHT WAY (QUALITY)</b>
Pre-pregnancy health.	Nutrition, family planning, prevent/treat STIs.	FP and STI services are available in the town but are used by only a small number of people.	Poor counseling skills. Stocks of drugs for STI treatment. Adolescents cannot access FP or STI services because of social barriers.
Care during pregnancy.	ANC visits, Rx anemia, Rx malaria, Rx syphilis, birth planning.	ANC coverage is 65%. Screening and treatment of syphilis is a national standard, but it is not carried out locally.	Lack of reagents and lab facilities for syphilis testing. No tracking system to treat women and their partners. Lack of adequately trained staff. Limited knowledge among the population about signs/symptoms.
Care during delivery.	Skilled attendance, availability of emergency care.	60% of women deliver with a skilled caregiver, but emergency care is limited.	No anesthesia available at facility. No blood bank. Limited transportation or resources to pay for services. Limited number of technically competent staff. Services available only about 6 hours per day (9 a.m. to 3 p.m.).
Newborn care.	Essential newborn care, care of LBW baby, emergency newborn care.	Essential care and extra care of the LBW baby is available only to institutional deliveries (30% of total deliveries). Emergency care of sick newborns is virtually non-existent.	Essential care is not well practiced, even in the hospital. There are no written standards for care. No staff have been trained in newborn resuscitation. More than half of the babies are hypothermic. Early breastfeeding (within 1 hour of delivery) rate is only 10%. Eye prophylaxis is not given to any baby, although gonococcus is common.

More details on specific interventions are provided in Part Four. In this step we consider the decision-making process of selecting the most suitable interventions, and potential implementation strategies are discussed.

### C. How to Prioritize Interventions

The first step in the prioritization process is to select the criteria by which the options can be assessed. In this discussion, five criteria recommended by WHO are considered below. In situations in which resources are limited, it is often a challenge to identify interventions with strong evidence and particularly data on cost-effectiveness. Though evidence from scientific trials is important, for many of the major causes of fetal-neonatal deaths, there is a lack of evidence from randomized controlled trials in low-resource settings. If there is an international consensus that the intervention is beneficial, if it addresses a problem in the local setting, and if it is feasible, the lack of extensive scientific evidence should not stop the program manager from applying the intervention. However, this lack of evidence makes it important to carefully document the method, costs, and results.

### D. How Can Data/Information be Used to Prioritize Intervention Packages?

The information for prioritizing a given intervention package and/or its components will include both local data (collected in Steps 1 and 2) and information about the intervention. Part Four contains a summary of the available information on the key packages and interventions to address priority problems in newborn health. This can help the program manager identify evidence-based interventions.

**A locally important problem:** The intervention selected should address the priority problem identified in Steps 1 and 2. However, in many low-resource settings, almost every neonatal death may be a problem. There will be excess deaths due to infections, asphyxia, birth defects, and many other causes. Step 1 outlined some ways to decide which are the key problems, including the concept of attributable risk and the importance of the community's perception of a priority problem.

**Effectiveness of the intervention(s):** After the problem is identified, the question is whether there is an intervention with proven effectiveness in resolving it. Interventions may be effective in one setting but highly dependent on infrastructure and therefore not feasible in another setting. However, the program manager needs to assess their effectiveness in the local setting. For many fetal-neonatal health problems, there is a lack of high-quality evidence for interventions, such as from randomized controlled trials. The Intervention Packages described in Part Four are based on a review of the current literature and lessons learned from a variety of successful programs. These practices reflect the best understanding of the most effective interventions that contribute to a reduction in maternal and newborn mortality and morbidity. These recommendations may change as new research findings and program results become available.

**Cost-effectiveness:** Despite the misperceptions that maternal and fetal-neonatal health care must be costly, many interventions can have very positive results for relatively little cost. Unfortunately, there are limited cost data on fetal-neonatal health interventions, but certain interventions have been shown to be highly cost-effective, such as breastfeeding, kangaroo care, and family planning. However, if there is an effective intervention to address an important problem in a setting and the intervention meets other criteria, it should still be considered despite the lack of cost-effectiveness data.

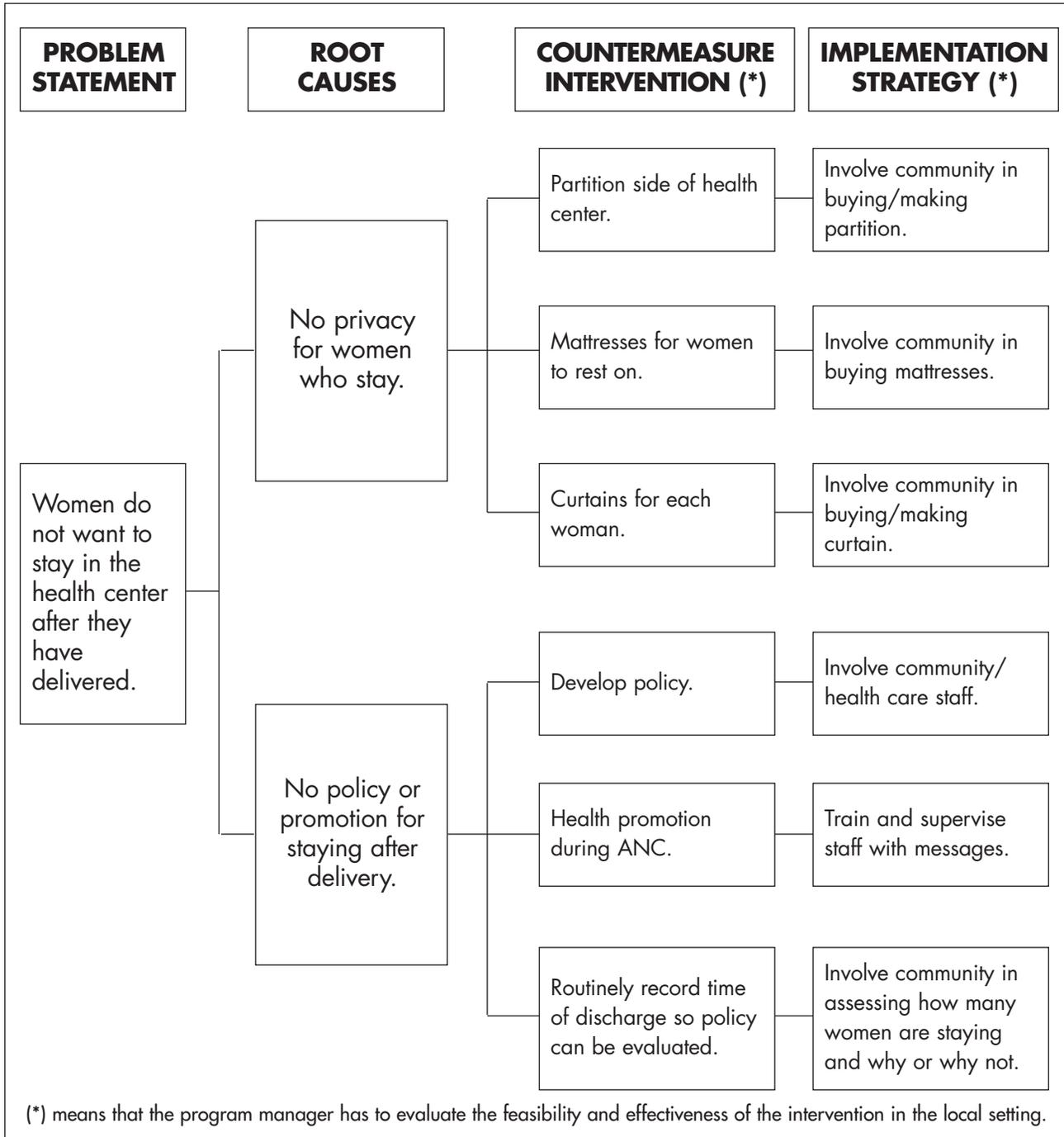
**Feasibility and sustainability:** An intervention is feasible if there is a consensus that it can be implemented successfully in the local setting despite resource constraints. For example, there are a variety of effective interventions to address hypothermia in LBW babies (i.e., heat lamps, incubators, kangaroo care). However, if a setting lacks regular electricity, kangaroo care is a more feasible (and still effective) intervention to achieve the desired result. Sustainability must be assessed at the outset of the project. The countermeasure matrix detailed in the quality management section of Part Two is useful for assessing exactly how an intervention will be carried out. Thus, it is a good tool to assess feasibility.

**Acceptability to the community:** To be sustainable, an intervention must be acceptable to the community. Although an intervention may represent new ideas for the community, the strategies must consider the community's culture, traditions, and values. Community members must be seen as full partners who can make recommendations about what is effective and feasible in the local setting.

### **E. How Can The Key Stakeholders Participate in the Prioritization of Intervention Packages?**

Select a priority that is important to the community, feasible, and will ideally show results quickly. Community input is particularly important in determining the effectiveness and feasibility ratings in the countermeasure matrix. Figure 3.6 provides an example of a completed countermeasure matrix. Instructions on how to complete a countermeasure matrix are provided in Part Two. In summary, a problem statement regarding performance is agreed upon, and then the root causes are listed. For each root cause “countermeasures” or solutions are suggested. The feasibility of these countermeasures in the local setting and their implementation strategies are discussed until an agreement is reached on the best option(s). Figure 3.6 is a real case from a quality management workshop in Tanzania.

**FIGURE 3.6**  
**THE COUNTERMEASURE MATRIX USED TO IDENTIFY INTERVENTIONS AND STRATEGIES TO ADDRESS SHORT STAYS IN A HEALTH CENTER AFTER DELIVERY**



**STEP****3a****PRIORITIZE INTERVENTIONS****SUMMARY****What is prioritization?**

Prioritization is a process whereby all the potential options (interventions that will address the problem) are reviewed according to a set of criteria. The aim of this process is to select the key interventions that will have the greatest impact on the problem in the local setting.

**Was the appropriate information collected, reviewed, and used to prioritize the intervention?**

- ❖ Addresses a locally important problem
- ❖ Evidence-based
- ❖ Cost-effective
- ❖ Feasible and sustainable
- ❖ Acceptable to the community

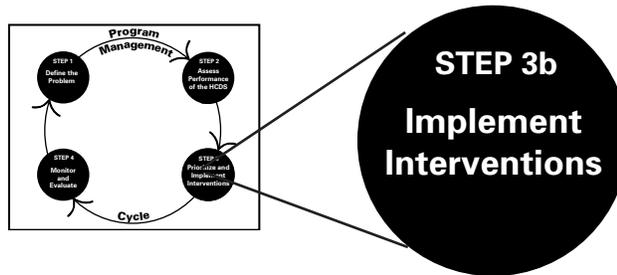
**Were the key stakeholders involved in prioritizing the intervention(s)?**

- ❖ Informal/community
- ❖ Intersectoral system
- ❖ Formal health care system

## STEP

## 3b

## IMPLEMENT INTERVENTIONS



- A. Summary of Steps 1, 2, and 3a
- B. What is an Implementation Strategy?
- C. How Can Data/Information be Used to Implement Interventions?
- D. What Are the Key Strategies for Implementing Interventions?
  - ❖ Creating partnership
  - ❖ Empowering communities
  - ❖ Promoting healthy behaviors
  - ❖ Building capable institutions
  - ❖ Advocating for supportive policies

**Summary of Step 3b.**



# TERMINOLOGY FOR PART THREE

## STEP THREE B

**Advocacy:** Promotion of an issue among policymakers and program planners.

**Behavioral change:** Characterized as proceeding through four stages: precontemplation, contemplation, action, and maintenance to result in a change to a desirable behavior.

**Capacity-building:** Increasing the ability of a local institution to provide high-quality services appropriate to the local setting; involves performance assessment and targeted strategies to improve staff competency, supply logistics, and other determinants of quality of care.

**Competency-based training:** Training of staff to the level at which they are fully skilled in the implementation of a certain practice, i.e., neonatal resuscitation.

**Goal:** A generally broad statement that guides the overall vision for a program.

**Objectives:** Statements about the expected short-term results (3-5 years) of an intervention; objectives should contribute to the overall goal, but be specific, measurable, achievable, realistic and time-bound.

**Policy change:** Modification of accepted procedures at any level on which policy is set – an individual, institutional, national level, or international level.

**Skilled providers:** Health care providers who have been trained to manage complications to competency level to manage complications.

**Standard of care:** Level of acceptable service that is expected to be delivered to all clients.

**Timeline:** Schedule of how often a given program will be implemented, monitored, and evaluated.

### A. Summary of Steps 1, 2, and 3a

At this point, the program manager and stakeholders have:

- ❖ identified the problem area(s) (i.e., care during pregnancy);
- ❖ agreed upon a standard for care (i.e., four visits for ANC, treatment of anemia, syphilis, malaria, birth planning);
- ❖ determined whether the interventions are the right interventions to address the defined problem(s) and the level of coverage for these services; and
- ❖ prioritized the interventions on the basis of selected criteria.

Now the task is to develop implementation strategies for the interventions selected. Part Four describes the technical interventions (i.e., pre-pregnancy health, care during pregnancy, care during delivery, and newborn care). This section will discuss the components of developing an implementation strategy and five key cross-cutting strategies that support the implementation of the technical packages.

It is **NOT** the **lack of effective interventions** that has resulted in high fetal-neonatal mortality, but the **lack of effective implementation** of proven interventions.

### B. What is an Implementation Strategy?

To effectively implement the right interventions, a comprehensive implementation strategy must be developed, one involving all sectors of the HCDS. The strategy should be based on data and information from the HMIS. It should also be acceptable to the community.

An implementation strategy should answer these questions:

#### KEY QUESTIONS

- 📄 **What is the goal?** What is our overall vision?
- 📄 **What are the objectives?** Exactly what do we plan to achieve?
- 📄 **What interventions will achieve our objectives?**
- 📄 **Where?** Which sectors of the HCDS will be involved and in what geographic location?
- 📄 **By whom?** Who will be involved in implementation of the interventions?
- 📄 **When?** How often will the interventions be provided?
- 📄 **Cost?** What is the budget for the strategy?
- 📄 **How?** How will the intervention(s) be implemented? (Example: through partnership)

### C. How Can Data/Information be Used to Implement Interventions?

In many settings, the success of a program is determined by management skills. Even programs with a large budget can fail, and one with a small budget can be successful because of the organizational and relational skills of the program managers. It is crucial to use information to design and adjust the plan during the process.

**What are the goals and objectives?** The first question to ask is, *What do we want to achieve?* This step is often skipped, but it is difficult to implement interventions if the desired result is unknown. Therefore, the steps are to articulate the end result (goal), set short-term objectives that contribute to the overall goal, and to evaluate interventions with respect to the goals and objectives. Measurable objectives are needed to monitor and evaluate progress. Often different funding agencies use slightly different evaluation frameworks for setting goals and objectives. In this manual, the terms goal and objective are used as follows:

**Goal:** *A goal is generally broad.* It usually is not measurable or even achievable within a given project time frame. The goal serves to guide the overall vision for the program. A goal usually results from a combination of different interventions occurring over a long period (i.e., 10 years) to achieve a desired result.

**Objective:** An objective articulates the results expected in a shorter period (three to five years). Objectives should be SMART, as described below. Achieving the objectives should contribute to realizing the goal. For example, if the goal is to improve newborn health but the objective is to reduce the prevalence of tuberculosis, the objective would not contribute much to the goal of reducing neonatal mortality because tuberculosis is not a major cause of neonatal deaths. Table 3.13 gives examples of goals and objectives for each identified weakness.

<p><b>S</b> pecific  <b>M</b> easurable  <b>A</b> chievable  <b>R</b> ealistic  <b>T</b> ime-bound</p>
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**TABLE 3.13**  
**EXAMPLES OF GOALS AND OBJECTIVES**

AREA	WEAKNESS (based on performance assessment)	GOAL	OBJECTIVES	POTENTIAL INDICATORS
Pre-pregnancy health.	Family planning accessible but poor counseling skills and frequent stock-outs.	Improve the health status of women of reproductive age.	By 200X, x% of providers will demonstrate that they can provide high-quality counseling skills, as defined for that setting.  By 200X, health facilities will experience stock-outs (no drugs available) less than X weeks a year.	Contraceptive prevalence rate.
Care during pregnancy.	Lack of operational syphilis services in a setting with a syphilis prevalence that is more than 5%.	Improve the health of women and newborns.	By 200X, 75% of ANC providers will be technically competent to provide quality screening treatment and partner notification services for syphilis.  By 200X, health facilities will experience stock-outs (drugs and reagents unavailable) less than X weeks a year.	ANC coverage.  Percentage of pregnant women screened for syphilis.  Percentage of pregnant women treated for syphilis.
Care during delivery.	Lack of operational comprehensive obstetric care services.	Improve the health of women and newborns.	By 200X, XX% of deliveries will be with technically competent attendants.  By 200X, emergency obstetric care services will be provided 24 hours a day 7 days a week by technically competent staff within XX miles of XX% of the population.  By 200X, x% of health facilities will have operational blood banks open 24 hours a day.	C-section rate.  Rate of severe birth asphyxia, death rate of normal birth weight babies in first 24 hours, and/or fresh stillbirth rate.
Newborn care.	No identification and simple extra care for LBW babies in an area where LBW rate is more than 15%.	Improve the health of newborns.	By 200X, 75% of providers will be technically competent to identify and to provide simple extra care for LBW babies.  By 200X, 100% of health facilities will become baby friendly (includes breastfeeding and kangaroo care for all LBW babies).	Mortality rate for LBW babies.  Exclusive breastfeeding 0-4 months for babies who were LBW.

**What interventions and strategies will achieve our objectives?** The interventions selected need to be the right interventions to achieve the objective. To take a real example from rural Tanzania, an objective was to reduce newborn deaths in the first 24 hours after delivery. One problem identified in Step 2 (performance assessment) was that women who deliver in the health center do not want to stay. Use of the fishbone diagram identified the root problem as a lack of privacy for the women. The countermeasure matrix (Figure 3.6) was then used to identify interventions and strategies to address this. After a partition and curtains were installed the number of women staying 24 hours after delivery increased from 0 to 33 per month within 9 months of the intervention. They are now focusing on increasing the proportion of deliveries occurring in the health center and trying to get a female midwife because the male health care worker is difficult for women to accept.

**Where?** Where applies to both the level of the health care system and the geographic location. The information collected in Step 1 should determine the geographic region where the problem is concentrated. This may be a particular ethnic group in one geographic setting who have higher rates of neonatal tetanus due to lower TT2 coverage and a harmful local practice. The information collected in Step 2 should determine where the key strengths and weaknesses are in the health care system. If most deaths are in the community, this would be the focus of the implementation strategy.

**By whom?** Successful implementation of an intervention requires collaboration and teamwork. It is essential to identify individuals and organizations that will be actively involved in implementing and supporting the strategy. Those involved in implementation may include the community (i.e., volunteers, physicians, TBAs, traditional healers, organizations), field coordinators, program managers, NGOs, in-country agencies, or international agencies. After identifying those who will aid in the implementation process, roles and responsibilities must be clearly outlined and understood by all.

Often it is the quality of the personnel in a program and the relationships of the team members that are a major factor in the success of a project. This success is more likely if the roles of the various personnel involved are clearly understood. Supervision is an important task that takes time and should be included. The lines of responsibility must be well understood, especially if several partners (i.e., MOH, NGOs, donor agencies) are working together on a program.

**When?** Timelines are necessary to guide the overall workplace strategy. Table 3.14 illustrates how a timeline can be organized. The most common error is to underestimate the time necessary for any task, but especially for establishing a new intervention program. Involving the community may take longer initially, but it is more likely to result in sustainable benefits.

**Cost?** Before implementing any strategy, the costs of the program must be estimated. The planned allocation of costs should be compiled to form a budget.

**How?** A specific work plan can be developed after the goals, objectives, interventions, and implementation strategies are decided.

**TABLE 3.14**  
**TIMELINE FOR NEONATAL RESUSCITATION TRAINING**

	YEAR 1							
	Jan.	Feb.	Mar.	April	May	Jun.	July-Sept.	Oct.-Dec.
Recruit trainers	X	X						
Assess current performance		X	X					
Develop and test materials; prepare training site		X	X	X				
Training trainers			X		X		X	X
Monitoring			X	X	X	X	X	X

#### D. What Are the Key Strategies for Implementing Interventions?

Cross-cutting strategies are essential to a program's ability to achieve its goals and objectives in the long-term. The five main strategies that will be discussed are:

1. creating partnerships;
2. empowering communities;
3. promoting healthy behaviors;
4. building capable institutions; and
5. advocating for supportive public policies.

##### 1. Creating partnerships

**What is partnership?** For the purposes of this manual, partnership is defined as a combination of organizations or individuals united to achieve a specific objective.

**Why partner?** As stated previously, maternal and fetal-neonatal health problems are complex. They arise from a combination of social, cultural, environmental, and medical conditions that perpetuate the situation. All of these factors must be considered when selecting interventions and designing implementation strategies. The responsibility for solving this problem lies with local health professionals, communities, households, and women themselves.

Also, partnership provides opportunities to achieve a much greater result than could be achieved by any organization on its own. There may be economies of scale, or more simply the synergies of the different partners may facilitate the development and implementation process. Effective partnerships often maximize the respective comparative advantages (strengths) of the partner organizations. For example, NGOs usually work at the community level, focusing on those services (their strengths) that make the best use of resources. Similarly, the government usually has the health infrastructure (i.e., facilities, staff, and drugs). This division of labor may allow the partners to focus on their strengths.

Coordinated efforts among households, communities, local and international NGOs, government agencies, the private sector, and bilateral and multilateral donor agencies are key to developing and implementing effective strategies. Partnerships also need to be forged with sectors other than the health sector. These may include the ministries of education, trade, agriculture, or NGOs working in these areas. Partnerships are important, but they also require time and energy to build and develop.

***Key principles/elements of effective partnerships:***

Presented below are some of the key elements of partnerships.

- ❖ There is a clearly shared vision, such as reducing fetal-neonatal and maternal deaths.
- ❖ Benefits and expectations of the partnership are known by all parties.
- ❖ Boundaries are clear on both sides.
- ❖ There is a shared understanding that an intervention requires time and resources to be successful.
- ❖ There is mutual transparency, respect, and trust.
- ❖ Credit is shared.
- ❖ Successes and failures are examined, and lessons are applied.

## 2. Empowering communities

***What are communities?*** Communities are not stagnant entities but are constantly evolving in response to change. Community empowerment is a process by which communities proceed to assume more control for their own health practices and services. Program designs, in partnership with communities, must take into account community resources when selecting interventions and planning implementation. Community systems designed to improve access to maternal and fetal-neonatal health services need to be location-specific and deal with the main constraints in that setting.

***Why work with communities?*** First, communities, households, and individuals are the primary caretakers of their health. The more information and access to services they have, the greater the likelihood that their health status can be improved. In many settings, communities have practices that may be beneficial but are not accepted by formal health providers. Second, most of the world's maternal and fetal-neonatal deaths occur in the community. The communities may not be aware of the problems, or they may believe that they can not make a difference. Third, the responsibility for solving problems ultimately lies with the communities, households, and women themselves. Fourth, communities have strengths and resources available that may be a key component in problem-solving.

***How to work with communities:*** There is no magic formula for working with communities. It is a long-term process. Success depends on two factors:

- the approach undertaken and the attitude with which it is carried out; and
- the appropriate use of selected approaches and tools (i.e., community self-diagnosis).

Information can be collected about the community through a variety of quantitative and qualitative research methods. The use of participatory tools can provide richer data and may give the community an active role in the decision-making process. Participatory methodologies, such as participatory rural appraisal (PRA), participatory learning in action (PLA), or the Warmi approach developed by MotherCare/Save the Children in Bolivia, can promote community involvement among a variety of opinion leaders.

As stated previously, the informal and intersectoral sectors of the HCDS need to be actively involved in all four steps of the Program Management Cycle. There must be a two-way dialogue with all the HCDS sectors to understand priorities, identify ways to solve their problems, and ultimately achieve the highest level of health attainable in that setting.

Table 3.15 outlines key factors to consider when working with communities. Table 3.16 summarizes some successful and unsuccessful approaches for addressing the community. Panel 3.1 provides a story of a rural community in Bolivia where community empowerment has a dramatic effect on perinatal mortality.

**TABLE 3.15**  
**FACTORS TO CONSIDER WHEN WORKING WITH COMMUNITIES**

- **Treat everyone with respect** and dignity and meet the community where they are.
- **Reversal of learning.** Go as a student rather than a teacher (there are many things that the community members can teach us, even if they are not literate). Program managers and health providers often have certain perceptions about the communities. To be effective, we need to be aware of our knowledge, attitudes, and practices. Many health practices are used because they are more convenient for the provider than for the client (i.e., a woman's lying on her back to deliver. This position is easier for the provider, but it doesn't facilitate the delivery process).
- **Supportive environment for discussion.** Create an open environment for discussion (i.e., not blaming or being judgmental).
- **Actively listen.** There is a difference between actively listening and hearing. With hearing, you may or may not understand what is being said. You may think you heard what someone said, but it is possible that you influenced it with your own biases. Actively listening means that you listen to what is said (even if it is different from what you believe) and probe deeper to understand what a person means.
- **Seek diversity.** It is rare that communities are homogenous. Men probably have different views than women, as might young and old people, people with land and those without, and people of different religious or ethnic groups. Since they are all members of the community, it is important to listen to all of them. Often, the program manager must make a special effort to collect this information because some may not be represented among the key stakeholders (i.e., minority and marginalized groups)
- **Discuss how the problem can be solved jointly.** Communities have access to resources and know what programs have been tried and have failed in the past. They are key to developing feasible, sustainable solutions.

Source: Fuerstein, 1993.

**TABLE 3.16**  
**SUCCESSFUL AND UNSUCCESSFUL APPROACHES FOR ADDRESSING THE COMMUNITY REALITY**

AREA	COMMUNITY REALITY	SUCCESSFUL APPROACHES	UNSUCCESSFUL APPROACHES
<b>Knowledge</b>	The community may lack knowledge and be illiterate but that does not mean they are not willing to learn.	What do they know already? How can we learn about their culture and traditional practices?	What do we have to teach them? We have to teach them everything because they do not know anything.
<b>Attitudes</b>	Communities have a key role to play in promoting maternal and fetal-neonatal health, particularly in addressing some of the delays in accessing care.	Some of the practices may be harmful, but others may be beneficial.	
<b>Skills</b>	Women like to deliver at home. They feel more comfortable, and it is the natural way. Traditional birth attendants have delivered babies for centuries with great success.	How can we make women feel more comfortable when they come to the health facility? What practices and skills can be built upon?	Women should deliver in hospitals because it is better for them. The community has nothing to contribute. We have to develop their skills from scratch.
<b>Behaviors</b>	Women like to deliver in a squatting position. It is better for the baby and easier on the mother. We bury the placenta as a sign to our God that the baby has been born.	Each woman is an individual, and she should decide which position is the best for her. We need to learn more about the way women deliver at home.	All women in a facility will deliver in a maternity bed and on their back because it is the best position for them. We need to assess the placenta and dispose of it because it is dirty.
<b>Resources</b>	Community members donate their time and labor. Communities have access to development funds. Communities have access to funds from other sectors (i.e., transportation).	Community members have access to resources.	Communities are very poor. They do not have access to any resources.



**PANEL 3.1**  
**LESSONS LEARNED**

**REDUCING PERINATAL MORTALITY IN RURAL BOLIVIA**

Aymara, with a population of 15,000, is a remote and isolated area with a maternal mortality ratio of over 1,000 per 100,000 live births and a perinatal mortality rate of 103 per 1,000 births. The three health posts lacked equipment, supplies, and skilled personnel to manage obstetric complications. Traditional birth attendants were not available, and husbands were the main providers of care during labor.

A project with MotherCare and Save the Children formed women's groups and introduced a simple model for community-level problem-solving that involved four steps:

1. identification and prioritization of problems;
2. group development of an action plan;
3. implementation of group plans; and
4. evaluation.

Activities included raising community awareness of maternal and fetal-neonatal health issues and using radios, flip charts, booklets, and a home-based woman's health card to teach simple delivery and fetal-neonatal care and danger signs. The community identified an individual to be responsible for drying the baby, cutting the cord, and promoting breastfeeding. Family planning services were provided in collaboration with a local NGO.

Over half the women in the 52 communities participated between 1991 and 1993, and the PMR dropped from 75 to 31 per 1,000 in 2 years, mostly due to a reduction in deaths on the first day of life. There was an increase in attendance at antenatal and postnatal services, use of trained birth attendants, tetanus immunization coverage, and consumption of iron and folic acid. Family planning coverage increased from 0% to 27%. A reduction in MMR was not documented.



Source: O'Rourke K, Howard-Grabman L, Seoane G. Impact of community organization of women on perinatal outcomes in rural Bolivia. *Rev Panam Salud Publica*. 1998.

More details are available on the CD-ROM, including the CARE manual "Embracing Participation," which includes tools and field examples of reproductive health programs.

### 3. Promoting healthy behaviors

Information, education, and communication activities are important to increase knowledge. However, this is only the first step in behavioral change. A message directed at a population does not necessarily result in healthier behavior. There has been a wealth of research in behavioral change that is now being applied more widely in international field settings. Behavioral changes typically occur in four stages (Table 3.17).

**TABLE 3.17**  
**THE FOUR STAGES OF BEHAVIORAL CHANGE**

STAGE	DESCRIPTION OF STAGE	EXAMPLE
Precontemplation.	Not personally considering this behavior.	Has never considered family planning.
Contemplation (awareness, knowledge, and attitudes).	Considering this behavior. Weighing balance of benefits and barriers.	Considering family planning, but barriers include long distance to health facility, user fees, and opposition of husband.
Action (change behavior once).	Started to practice this behavior but not necessarily consistently.	New acceptor of family planning.
Maintenance (continue health behavior).	Practice this behavior consistently.	Consistent user of family planning method.

Source: Adapted from Prochaska J et al. in *Health Behavior and Health Education, Theory, practice and research*, 1997.

Research indicates four key areas to successful behavioral change programs:

- ❖ clear definition of the problem;
- ❖ careful selection of the target audience(s);
- ❖ assessment of the target audience's current knowledge and behaviors; and
- ❖ well-researched and designed message.

***Clear definition of the problem:*** The more specific the problem definition is, the easier it will be to identify the primary and secondary target audiences. This will also assist in developing an appropriate message.

**Careful selection of audiences:** While careful selection of the primary target audience is important, successful behavioral change programs have found that change is more likely if several additional audiences are involved. Thus, the program manager and stakeholders need to identify the primary target audience as well as other key people (secondary target audience) who are necessary to support the behavioral change. For example, to promote early exclusive breastfeeding, the primary audience may be mothers, but secondary audiences may be mothers-in-law, husbands, and TBAs.

Another important target audience is health personnel. Studies have shown that a significant proportion of women do not access health services because staff members either ignore them or treat them rudely. Many providers have never received training in interpersonal communication, counseling skills, or appropriate use of behavioral change communication materials. Behavioral change strategies need to focus on changes in the providers' skills as well as in their attitudes and demeanor. Health provider training must include instruction about how to use educational materials in the most effective manner to promote behavioral change among clients.

**Assessment of audience's current knowledge and behaviors:** The key to a well-designed message is to assess the target audience's current knowledge and practices. Knowing your audience is critical to designing an appropriate message.

**TABLE 3.18**  
**ASSESSING AUDIENCES' KNOWLEDGE AND BEHAVIORS:**  
**EXAMPLE EARLY BREASTFEEDING**

<b>AREA TO BE ASSESSED</b>	<b>CURRENT SITUATION</b>
What do they already know?	They have been told Colostrum is bad for the baby.
What do they do regarding this practice? (Women express colostrum and throw it away. They think it is bad.)	They think it causes jaundice in the baby.
Are they thinking of changing behavior?	Not yet.
What are the advantages and disadvantages of changing their behavior?	Advantage is that reduction in neonatal deaths. The disadvantage is that it is not socially accepted.
Are there groups and support to promote and maintain the healthy behavior change?	Village health workers.

***Well-researched and designed messages:*** Once it is clear what the audience thinks about the targeted behavior, a message can be crafted. The message content should:

- be appropriate for and relevant to the level of the target audience;
- describe the advantages and benefits; and
- be action-orientated.

There are many possible channels by which to deliver a message. It is usually more effective to use several channels (i.e., MOH facilities, schools, restaurants, women's groups) with reinforcing messages for the different target audiences. In addition, the message can be delivered through various media, including songs, puppet shows, skits, printed materials (such as posters and flipcharts), radio, television, or video.

Pre-testing, a process whereby concepts and draft messages are reviewed by representatives of the target audiences, is essential. This process gives insight into the appropriateness of the message (i.e., cultural appropriateness, effectiveness of message). Offensive or misunderstood messages can do more harm than good. For example, in Tajikistan, a poster was developed to promote use of iron tablets during pregnancy, but the beautiful woman in the poster did not have her head covered. This was offensive to local women. It is also important to have a health professional examine the technical accuracy of the message.

Table 3.19 outlines some of the key behavioral objectives to improve maternal and newborn health.

Panel 3.2 summarizes an imaginative and culturally sensitive behavior change program in Mali.

**TABLE 3.19**  
**BEHAVIORAL GOALS FOR MATERNAL AND FETAL-NEONATAL HEALTH**

<b>TARGET AUDIENCE</b>	<b>BEHAVIORAL GOALS</b>
<b>Pregnant women and mothers</b>	<ul style="list-style-type: none"> <li>• Seek care at least four times during pregnancy.</li> <li>• Complete ANC regimens (i.e., IFA, treatment of infectious diseases, tetanus toxoid immunization).</li> <li>• Plan for childbirth (place, attendant, transportation, money, blood donor).</li> <li>• Follow good self-care practices, avoid harmful practices, and make appropriate use of available health services.</li> </ul> <p><i>Where there is no skilled attendant at most births:</i>  Recognize obstetric and neonatal problems during pregnancy, childbirth, and the post-partum period.</p> <p><i>Where there is a skilled attendant at most births:</i>  Follow the skilled provider's advice to seek care in a timely manner during pregnancy, childbirth, and the post-partum period.</p>
<b>Communities</b>	<ul style="list-style-type: none"> <li>• Foster awareness among women, their families, and communities of obstetrical problems and risk-reduction behaviors (i.e., delay the first pregnancy, practice birth spacing, limit family size).</li> <li>• Participate in the management and improvement of local health services, create feedback mechanisms (i.e., stakeholder committees).</li> <li>• Facilitate communication and transportation links for women and fetal-neonates with emergencies.</li> </ul>
<b>Health workers</b>	<ul style="list-style-type: none"> <li>• Provide quality, client-centered care to women and fetal-neonates who seek services and use positive interpersonal skills to assist women and families in a respectful, culturally appropriate, and responsive manner.</li> <li>• Encourage women to deliver with a skilled attendant.</li> <li>• Provide quality ANC services, including detection and treatment of common infections (STIs, malaria, hookworm), promotion of appropriate nutrition, and counseling about birth planning.</li> <li>• Provide quality delivery services, including detection and treatment of complications and, if needed, prompt referral to an appropriate facility.</li> <li>• Provide quality post-partum care services for both the mother and the fetal-neonate.</li> </ul>
<b>Policy makers</b>	<ul style="list-style-type: none"> <li>• Make and support policies or norms that endorse the establishment of quality, client-centered, essential obstetric care services.</li> <li>• Provide reasonable funding for program efforts to improve maternal and fetal-neonatal health services.</li> <li>• Support baby-friendly hospital initiatives to promote breastfeeding in institutions and enforce the international code for marketing of breast milk substitutes.</li> </ul>

Source: Adapted extensively from unpublished document of CHANGE Project, 1999.



**PANEL 3.2**  
**LESSONS LEARNED**

**THE GREEN PENDELU IN MALI: ALTERING  
COMMUNITY ATTITUDES TO PREGNANCY**



A community-based project in Dioro, Mali, found that a key barrier to improving maternal health-seeking behavior during pregnancy was the embarrassment that both men and women felt while discussing pregnancy. Knowledge of the local culture identified the significance of the pendelu, a short cloth undergarment worn only by married women, which is a symbol of marital roles and privileges.

The intervention involved a modified pendelu, dyed green, to symbolize a women's pregnancy and the role of her husband as the protector. A song was developed involving the green pendelu and teaching about danger signs in pregnancy, the need for health care, and the role of the husband in encouraging healthy pregnancy for his wife. The song was performed at assemblies by the local Griot (an oral historian/educator/entertainer).

This simple intervention resulted in a more positive approach to pregnancy. Almost all pregnant women wore the green pendelu. Husband-wife communication about pregnancy increased dramatically from 3 percent to 66 percent. One-third of husbands said that they would lighten their wife's workload if she was wearing a green pendelu, and half said that they would make sure she got good nutrition.



Source: Adapted from "Turning the Ordinary into the Extraordinary: the Green Pendelu in Mali."

#### 4. Building capable institutions

All countries have some health system capacity with facilities and personnel, even if the disparities worldwide are striking. However, in many countries, improving access to maternal and fetal-neonatal health services has not been a priority. Upgrading existing facilities and skills of health personnel, often for relatively low costs, can make significant improvements in the quality of services and maternal and fetal-neonatal outcomes. A capable institution meets a set standard for performance given its purpose and setting. For example, an institution, such as a health center, that is not intended to provide cesarean-sections would not be assessed on its cesarean-section rate. More details on assessing performance are given in Step 2 of Part Three. Strengthening capacity involves improving the whole system, and the key supports of this system are standards for practice, skilled staff, and supplies. Table 3.20 provides characteristics of capable institutions.

**TABLE 3.20**  
**CHARACTERISTICS OF CAPABLE INSTITUTIONS**

CHARACTERISTICS OF CAPABLE INSTITUTIONS	AREA	ACTIVITIES
<p>Goal: Provision of high-quality information and services.</p>	<p>Standards of care.</p>	<p>Determine the standard of care (i.e., national and international guidelines and protocols). Locally adapted guidelines for provision of clinical services.</p> <ul style="list-style-type: none"> <li>• What should be done? (protocols for examination, investigation, and treatment)</li> <li>• When it should be done? (particular emphasis on timeliness)</li> <li>• Where it should be done? (emphasis on dignity and privacy)</li> <li>• What is required? (staffing ratios, equipment, drugs, etc.)</li> </ul>
<p>Strengthening capacity of human resources.</p>	<p>Appropriate deployment and compensation. Training for effective performance. Continuing education. Supportive supervision.</p>	<p>Develop job descriptions, regularly assess job performance. Have clear guidelines for what health workers should do in a given situation.  Provide training for health workers to learn and practice their skills until they are competent to appropriately manage obstetric and fetal-neonatal complications.  Continue to supervise or "support-a- vise" staff.</p>
<p>Managing and using information.</p>	<p>Data collection system.  Accounting system.</p>	<p>Routine collection of selected data, and use of data at the management level as well as reporting up the system. This may include outcome data, cause-specific data, and process indicators. Within an institution, it may include audit of maternal and fetal-neonatal deaths or "near misses."  System for budgeting and collecting and reporting on financial inputs and outputs.</p>
<p>Effective management systems.</p>	<p>Consistent drug supply. Basic equipment in working order. Stock of drugs.</p>	<p>Inventory management plan, regular physical inventories, forecasting.</p>

## 5. Advocating for supportive public policies

Although many countries have Safe Motherhood and Child Survival policies, few have specific policies addressing fetal-neonatal mortality. Many policymakers are unaware or misinformed. Thus, they do not view maternal or fetal-neonatal mortality and morbidity as a problem or a priority.

Politicians and officials make key decisions about budget allocations, infrastructure, and staffing patterns. It is important to build constituencies that support neonatal efforts at various levels (i.e., elected leaders at the national and local levels, religious leaders). These leaders need to understand the following:

- ❖ the magnitude of the problem and the impact of a maternal or fetal neonatal death on the community and family;
- ❖ interventions that can address the problem;
- ❖ actions that can be taken by the community and families to have favorable maternal and fetal-neonatal outcomes; and
- ❖ the importance of women's participating in the decision-making processes about health-seeking practices.

Advocacy is important, but it is difficult to make persuasive arguments without good data. Improvements in the information systems and use of data can increase the awareness in policymakers and program planners of the importance of the issues. Without this knowledge and subsequent political commitment to the issues, other efforts, such as changing laws or budget allocations, will be virtually impossible. Program managers need to be educated about the role of advocacy and how they can incorporate it into their current work. They can also play a vital role in the data collection, analysis, and feedback mechanisms. The health staff can use this information to make decisions to improve service delivery and to advocate on their own behalf. The global community needs to come together to support a systems approach to address maternal and fetal-neonatal deaths.

More details are available on the CD-ROM, including the CARE manual "Advocacy Tools and Guidelines: Promoting Policy Change."

<b>STEP</b>	<b>IMPLEMENT INTERVENTIONS</b>
<b>3b</b>	<b>SUMMARY</b>

**What is an implementation strategy?**

It is a strategy to effectively implement the right interventions in the right way, with comprehensive planning, management, and use of cross-cutting strategies.

**Was the appropriate information used to design the implementation plan?**

An implementation strategy should answer these questions:

- ❖ **What is the goal?** What is our overall vision?
- ❖ **What are the objectives?** Exactly what do we plan to achieve?
- ❖ **What interventions will achieve our objectives?**
- ❖ **Where?** Which sectors of the HCDS will be involved and in what geographic location?
- ❖ **By whom?** Who will be involved in implementing or supporting the implementation of the interventions?
- ❖ **When?** How often will the interventions be provided?
- ❖ **Cost?** What is the budget for the strategy?
- ❖ **How?** How will the interventions be implemented with the participation of key stakeholders?

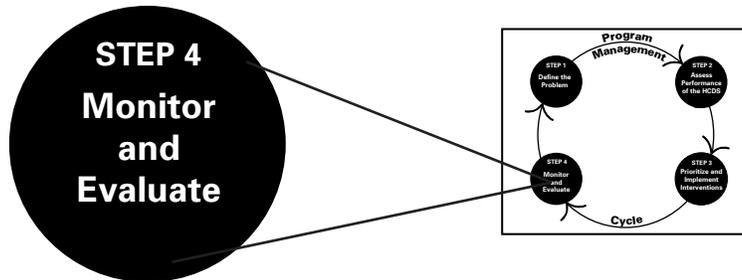
**What are the key strategies for implementing interventions?**

- ❖ Creating partnership.
- ❖ Empowering communities.
- ❖ Promoting healthy behaviors.
- ❖ Building capable institutions.
- ❖ Advocating for supportive policies.

## STEP

## 4

## MONITOR PROGRESS AND EVALUATE OUTCOMES



- A. Summary of Steps 1, 2, 3a, and 3b
- B. What are monitoring and evaluation?
- C. Using indicators
- D. How to select indicators in the local HMIS
- E. How can information be used to monitor and evaluate maternal and newborn programming?

### Summary of Step 4



# TERMINOLOGY FOR PART THREE

## STEP FOUR

**5 A's indicators:** A measurement that provides information about the availability, accessibility, acceptability, affordability, and appropriateness of an intervention.

**Goal:** A generalized statement expressing a program's intended effect on one or more health problems.

**Evaluation:** A comparison of an outcome indicator to a preset objective; measures the changes and results of interventions.

**Impact:** An effect on a population to reduce an undesirable outcome (i.e., death) brought about by an intervention.

**Impact indicator:** A measurement that provides information about a direct determinant of a problem on a population brought about by an intervention. An example is age at first pregnancy.

**Indicator:** A measurement that, when compared to either a standard or a desired level of achievement, provides information about a health outcome or management process.

**Indicator matrix:** A flow diagram that connects the different types of indicators in an outcome-impact-sequence model with BABIES.

**Input indicator:** A measurement that provides information about resource input including money, manpower, materials, and methods. An example is the number of neonatal resuscitation dummies supplied.

**Local indicator process:** A series of interrelated activities involving all of the stakeholders that produces a set of outcome, impact, and process indicators for a local situation.

**Monitoring:** An on-going system of data collection and tracking that provides a program manager with information to make management decisions.

**Outcome indicator:** A measurement that provides information about a change in a significant result that reflects health status. An example is neonatal mortality.

**Output indicator:** Measurements of the results of expenditure of resources. Output indicator categories include: coverage, number of people trained, number of facilities, changes in knowledge, etc.

**Process indicator:** A measurement that provides information about activities or contributing factors that influence the level of the determinants in an intervention strategy. Process indicators are intermediate measures used during the course of implementing an intervention strategy to provide assurance that, if activities are conducted correctly, health outcomes will improve. An example is contraceptive prevalence rate.

### A. Summary of Steps 1, 2, 3a, and 3b

At this point, the program manager and stakeholders have:

- ❖ identified the key problem "Opportunity Gap;"
- ❖ assessed the performance of the HCDS, with respect to the problem;
- ❖ prioritized and selected interventions; and
- ❖ developed an implementation plan.

Two new questions now need to be asked. The first question is, *How do we measure if the program is working well?* The second question is, *How do we assess if the interventions were successful?* A monitoring system must be developed to track processes and guide management decisions. Periodic evaluations need to be undertaken to assess performance at the health outcome level (i.e., reduction in newborn mortality).

Step 4, monitoring progress and evaluating outcomes, completes the program management cycle. This step provides a set of guidelines to assist program managers in maintaining a course of action that is consistent with the program's stated outcome objectives. The result of Step 4 is a redefinition of both the health problem and an assessment of the program management cycle. This step's output is the input to the continuing cycle of program improvement.

This manual adapts the CDC/CARE monitoring and evaluation guidelines into a tri-level monitoring and evaluation procedure with three major types of indicators (*process, impact, and outcome*) (Table 3.22). These will be described later in this section. In its simplest form, this procedure is an if-then logic model. *If the program performs the right evidence-based activities in the right way, then there will be a positive effect on a health problem that should alleviate the health problem.* This procedure assists the program manager in locating the source of trouble, if a program does not achieve its expected outcome.

The *process-impact-outcome* linkage reduces the chance of outcome displacement (achieving change in process but not in health outcome) by keeping attention focused on the health outcome. Every program needs an opportunity to succeed; if it cannot succeed in terms of outcome, it will shift its objectives to those it can achieve. The process then becomes the purpose, and input becomes the surrogate for output. "Health" becomes equivalent to "equal access to medicine."

## B. What are monitoring and evaluation?

The terms monitoring and evaluation are often used interchangeably, but they have different meanings. The main differences between the two are highlighted in Table 3.21.

**TABLE 3.21**  
**DIFFERENCES BETWEEN MONITORING AND EVALUATION**

	<b>MONITORING</b>	<b>EVALUATION</b>
<b>Focus</b>	Process indicators: provide feedback about implementation strategies.	Outcomes: provide feedback about the results of the interventions.
<b>How often are the data collected?</b>	Monthly, quarterly, or semi-annually.	At least every year by program staff Every 2-3 years by external persons.
<b>How often are the data reviewed?</b>	Monthly, quarterly, or semi-annually.	At least every year by program staff Every 2-3 years by external persons.
<b>Who collects and analyzes the data?</b>	People involved in the program.	Unbiased person, external person
<b>Implementation steps.</b>	<ol style="list-style-type: none"> <li>1. Choose a variable that will reflect what you want to measure (indicator).</li> <li>2. Set objectives for the level of this indicator at a given time.</li> <li>3. Compare the current level of the indicator with the objective level.</li> </ol>	

**Monitoring** is an ongoing systematic process that provides information needed to make program management decisions. The monitoring system collects and tracks process indicators. This information allows the program manager to understand if the interventions are being done "the right way". Monitoring is important because it provides feedback on progress. It allows changes to be made more promptly, thereby assuring the program objectives are more likely achieved.

It should be noted, however, that processes are expected to lead to a change in outcome. Even if the process indicators have improved (i.e., testing of more pregnant women for syphilis), the outcome may not change. For example, if syphilis testing increases but women are not treated, there is probably not a reduction in stillbirths from syphilis. Therefore, both the process and outcome indicators are important for measuring progress towards a desired result.

**Monitoring = process indicator compared to preset objective.**

**Example:** Ongoing recording of the proportion of deliveries with a skilled attendant compared to a goal of 80 percent coverage at a certain date.

**Evaluation** is the systematic and scientific process of determining the extent to which an action or sets of actions were successful in the achievement of predetermined objectives. It involves measurement of adequacy, effectiveness, and efficiency of health services to reduce the “Opportunity Gap.” Evaluations usually occur after enough time has lapsed (1-2 years) to measure changes and results of the interventions. As stated previously, evaluations focus on outcome measures and are usually conducted by external persons.

**Evaluation = outcome indicator compared to preset objective**

**Example:** Assess if neonatal mortality decreased to a certain predetermined level, such as from 50 to 40 per 1,000 live births, by a certain date.

The purpose of an evaluation is to provide information for programmatic decision-making. This information helps program managers make better decisions about health programming in their setting and determine future strategies (i.e., community-based distribution) or standards of care (i.e., oral rehydration salts). This information can also provide insight into allocation of resources (human, material, and financial).

### C. From global to local indicators

**What is an indicator?** An indicator is a measurement that, when compared to either a standard or a desired level of achievement, provides information about a health outcome or management process. Indicators track progress (either of process or outcome). Often many indicators are selected, thereby requiring extensive data collection. However, in most settings, only a small portion of the data is used in the decision-making process. The BABIES matrix is an example of using a few pieces of data to provide significant amounts of information. It is better to select a few key indicators, measure these effectively, and use them actively in decision-making. Some types of indicators are outlined in Table 3.22. In the next section the local indicator matrix is explained as how to produce newborn indicator system.

**Indicator = a measurement that, when compared to either a standard or a desired level of achievement, provides information about a health outcome or management process.**

Mortality and morbidity events are measured by outcome indicators. There are specific interventions that are meant to prevent mortality and morbidity. Impact indicators measure some aspect of the intervention that is then used to monitor and evaluate the effectiveness of the intervention. Impact indicators help the program manager focus on the interventions most likely to achieve the greatest reduction in excessive mortality and morbidity.

**TABLE 3.22**  
**TYPES OF INDICATORS**

<b>TYPE</b>	<b>DEFINITION</b>	<b>EXAMPLE</b>
<b>Outcome</b>	Change in significant end result reflecting health status (morbidity or mortality).	Neonatal mortality rate.
<b>Impact</b>	Measurements associated with interventions that are meant to prevent or treat determinants of conditions that cause mortality or morbidity.	Age at first pregnancy.
<b>Process</b>	Measurements of contributing factors that influence the level of the determinants of health outcomes or impact interventions. Categories include output, the 5 A's, and input.	
	<b>Output</b> - Measurement of the results of expenditure of resources. Output indicator categories include: coverage, number of people trained, number of facilities, changes in knowledge, etc.	Number of birth attendants that are trained. Women who know about the six cleans. Percentage of women covered with tetanus toxoid immunization. Percentage of deliveries completed with a clean delivery kit.
	<b>5 A's</b> - Measures of availability, accessibility, acceptability, affordability, and appropriateness	Percentage of hospitals capable of performing C-section. Percentage of women living within two km of facility capable of doing C-section (accessibility).
	<b>Input</b> - Resources (i.e., manpower, materials, money, methods (4 M's).	Staff for mobile outreach team for tetanus immunization.

**From global to local indicators** - Environmentalists have coined the phrase, “Think globally, but act locally.” Recent activities of UN agencies, bilateral governmental organizations, and NGOs have developed large lists of possible indicators to be used at the global and national level for reproductive health, safe motherhood, and child survival. WHO has produced a list of 18 recommended indicators for “Making Pregnancy Safer” and guidelines on how to use them. These indicators and guidelines are on the attached CD-ROM. The MEASURE evaluation project also has many useful guides for monitoring and evaluation, and its compendium on reproductive health indicators is also on the CD-ROM.

Based on the WHO recommendations, outcome indicators for newborn health at global and national levels may include:

- ❖ neonatal mortality rate;
- ❖ late fetal death rate;
- ❖ perinatal mortality rate;
- ❖ preterm birth rate (<37 weeks);
- ❖ ratio of fresh stillbirths to macerated stillbirths;
- ❖ number of neonatal tetanus cases;
- ❖ birth weight specific neonatal mortality rate for LBW babies; and
- ❖ how birth weight rate.

Based on the WHO recommendations, process indicators for newborn health at global and national levels may include:

- ❖ % of pregnant women who receive at least two ANC visits;
- ❖ % of pregnant women who have had two or more doses of tetanus toxoid immunization;
- ❖ % of pregnant women who are appropriately screened/treated for malaria;
- ❖ % of pregnant women who are appropriately screened/treated for syphilis;
- ❖ % of pregnant women who have a maternal health card;
- ❖ % of pregnant women who know two or more newborn danger signs;
- ❖ % of institutional deliveries;
- ❖ % of deliveries with a skilled attendant at birth;
- ❖ % of women who breastfeed their baby in the first hour of life;
- ❖ % of women who exclusively breastfeed for 6 months;
- ❖ % of baby friendly hospitals; and
- ❖ % of babies who receive eye prophylaxis care.

These indicators are important for national and international decision-making but may be less relevant or less meaningful at the program level. While information should be passed "up" to the national level to follow these indicators, information from local indicators is required for local decision-making.

#### **D. How to select indicators in the local HMIS**

The process to determine local indicators must:

- ❖ be adaptable (rational but not rigid) to all newborn programs;
- ❖ allow for easily understood comparisons between programs; and
- ❖ prevent outcome displacement (defined previously).

Local indicators should be developed at the local level through a process that includes representatives from all stakeholder groups. The indicators derived in the process are an absolute necessity if quality services are to be provided. The following are the three basic principles to follow when selecting local indicators.

- ❖ Keep it simple and participatory.
  - Define clear goals and objectives.
  - Insist that data collected at the local level be usable (analyzable) at the local level.
  - Build on current systems.
  - Develop simple materials at the community level to explain the function of local indicators. Assure community understanding and involvement.
- ❖ Consider using BABIES.
  - Account for every pregnancy and weigh every newborn.
  - Perform the Gap Analyses for time, place, and person to provide focus and direction.
  - Map the indicators in the indicator matrix (explained later in the section).
- ❖ Develop quality systems.
  - Avoid outcome displacement; link BABIES to management process indicators through outcome and impact indicators.
  - Promote two-dimensional thinking at all levels of data analysis, particularly the health centers and hospitals.

## 1. Components of the local HMIS

The essential components of newborn HMIS were described in Part Two. Three points need to be emphasized.

- **The data collection system can drive both coverage and quality of care.** It drives coverage by insisting that there is a record to account for every woman and newborn (clinical record and, if necessary, a death certificate). It drives quality of care through the implied guidelines and services reported on the record.
- **The data currently available should be fully utilized before additional data are collected.** The features of the data (type, level of collection, timeliness of reporting, source, availability and accessibility, reliability, and usefulness) will determine whether the data are used in the local HMIS. It is better to have few pieces of data used well in local decision-making.
- **The home-based unit record<sup>a</sup> is the core element of the local HMIS.** The mother should keep her record, and then the newborn's record, with her at all times. A copy of this record may be maintained at the local health facility and serve as the means for data collection.

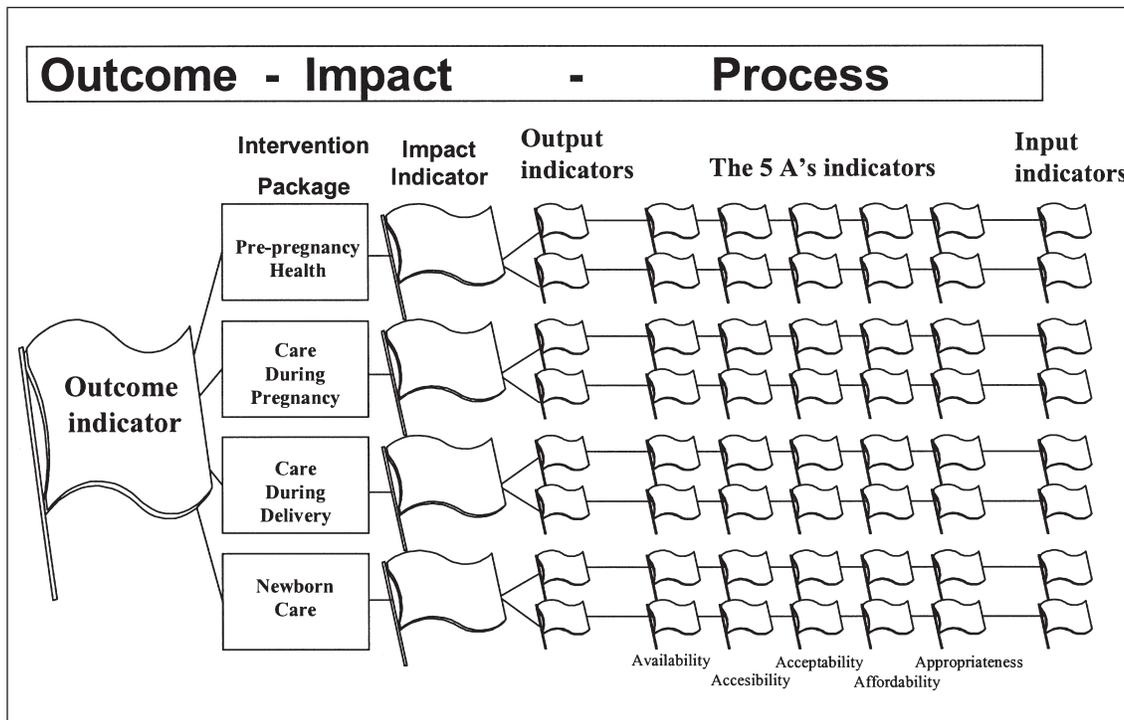
## 2. The local indicator matrix

The local indicator matrix is a flow diagram that connects the different types of indicators in an *outcome-impact-process* model (Figure 3.7). This manual suggests that an outcome indicator from BABIES be used at the head of the matrix. Other outcome indicators may also be substituted. For each component of the intervention packages there is an impact indicator. A process indicator may also be necessary for each impact indicator.

There are three types of process indicators. The output indicators are generic and fall into several categories of quality of services (coverage, impact, number of personnel trained, changes in community attitudes). The 5 A's represent availability, accessibility, acceptability, affordability, and appropriateness and their indicators can refer to either the intervention or a component of it. The input indicators refer to the manpower (person power), materials, money, and methods. Local quality teams have found the local indicator matrix very useful in maintaining their focus on outcome.

<sup>a</sup>A unit record refers to the data from a single woman and newborn, collected and stored electronically so that multiple variables from one record can be analyzed to define an indicator. Modern technology now permits the inexpensive storage and tabulation of these data.

**FIGURE 3.7**  
**PRINCIPLES OF A LOCAL INDICATOR MATRIX**



### 3. Selecting and using local indicators

In order to complete the local indicator matrix, the program manager has to undertake the four actions presented below.

**Action 1- Team Building:** The program manager's first action is to form a team of local stakeholders. The team should be interdisciplinary and include all components of the HCDS. By including all stakeholders, the program manager assures consensus in the community, the lack of which is a common cause of failure when trying to implement the system and respond to information from indicators. This team is not meant to function all together, all of the time. In fact, small groups working independently on specific tasks for short periods of time are a much more effective and efficient use of time and talent. A key managerial decision is when to bring the full team together to obtain consensus. Consensus is an endorsement from the group with everyone willing to support the system even though they may not fully agree on all of the minor details. The program manager should bring the group together when there has been enough small group discussion to eliminate surprises, not necessarily disagreement, and when consensus can be achieved within a 3-hour session (morning or afternoon).

**Action 2 – Select Indicators:** The first task for the program manager and stakeholders is to complete the local indicator matrix for each component of BABIES. This can be done because the program manager and stakeholders have identified the key problem (“Opportunity Gap”), assessed the performance of the HCDS with respect to the problem, prioritized and selected interventions, and developed an implementation plan.

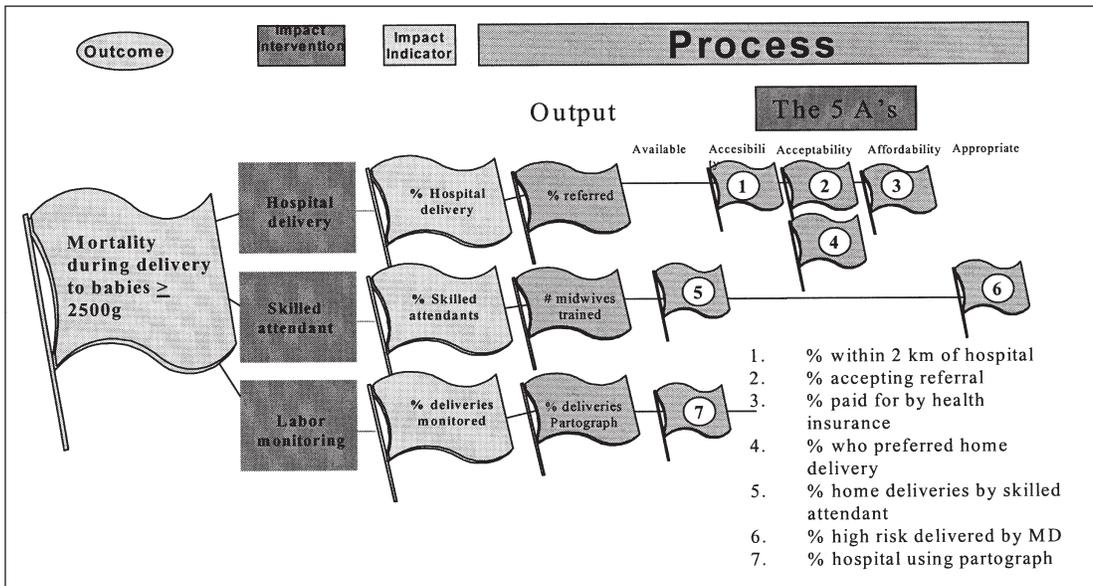
To begin the indicator selection process, the team divides into small groups and works separately for a time. They come together to compare results. There should be at least one outcome indicator and impact indicator for the intervention selected. There may be multiple impact indicators but often there are no process indicators thought to be necessary for a specific intervention. The team decides whether there is a need for any one of the 5 A's indicators. The team decides if there is a need for an input indicator. The indicator name is placed in the appropriate flag in the indicator matrix. The process is repeated until the matrix is complete. Examples of the package content and associated indicators were seen in Figures 2.10 and 2.11, respectively. A more detailed discussion of the intervention package contents will follow in Part Four. Data are used as much as possible in this step. When data are incomplete, a consensus can be used to justify the inclusion of an indicator. However, this should be done rarely and only with an accompanying plan to collect the indicator data and to assess feasibility.

**Action 3 - Map the indicator matrix with the whole quality team:** Mapping the local indicator matrix refers to a process that eliminates all the flags on the matrix thought to be unnecessary for each BABIES Intervention Package/Package Component. If there are four BABIES Intervention Packages, there will be four figures comparable to Figure 3.8.

**Action 4 - Review the results with the whole quality team and develop a plan:** Prepare presentations that can be made by the team members to all appropriate stakeholders to gain acceptance of the matrix. Prepare a plan for response, analysis, and data collection for each of the indicators. This plan should describe who will do what, where, when, and how.

Figure 3.8 is an example of the preliminary work of a quality team during a workshop on local indicator development in a Middle Eastern country. The team members focused on two cells in the BABIES matrix, care during delivery and care of the newborn for newborns weighing greater than or equal to 2,500 grams. A pilot project is underway to test the feasibility of the system. Figure 3.8 is the flowchart that depicts the indicator matrix for care during delivery for the pilot project. The team felt that three impact interventions should be monitored with an output indicator, but felt that only a certain number and type of the process indicators needed to be followed. The specific indicators are listed in the legend of the figure.

**FIGURE 3.8**  
**EXAMPLE OF LOCAL INDICATOR MATRIX FOR MORTALITY**  
**DURING DELIVERY TO BABIES  $\geq 2500$  G**



### E. How Can Information be Used to Monitor and Evaluate Newborn Programming?

A monitoring and evaluation plan should be developed at the beginning of a program. The plan should answer the following questions.

- 1) What indicators will be measured?
- 2) Which source(s) will provide the data?
- 3) How often will the data be collected?
- 4) Who will collect and analyze the data?
- 5) What is the anticipated response in the program when changes in the data are observed?
- 6) How can key stakeholders participate in the HMIS?

#### 1. What indicators will be measured?

The indicators chosen should relate to the information needed to manage the local program and to measure its effectiveness. The outcome indicators will be determined by the objectives of the intervention as outlined in the countermeasure matrix. For example, if the objective is to reduce neonatal tetanus deaths by 50 percent in five years, deaths from neonatal tetanus must be recognized and counted. The monitoring indicators will reflect the process of the activities. For example, in the neonatal tetanus program, the activities may be tetanus toxoid immunization of pregnant women and clean delivery kit promotion. Thus, the process indicators might be TT2 coverage in pregnant women and percentage of deliveries completed with a clean delivery kit.

#### LEVELS OF MEASUREMENT

- ✦ Individual mother or baby.
- ✦ Health care facility.
- ✦ District or program area.
- ✦ National.
- ✦ Regional.
- ✦ Global level.

Many sources of data appropriate for low resource settings have been outlined in Part Two (Page 2.31) including the following:

- ❖ a home-based maternal/newborn record;
- ❖ a community monitoring board;
- ❖ birth registers for institutional/health center deliveries; and
- ❖ verbal autopsies.

## 2. Which source(s) will provide the data?

Data can be collected and measured at many different levels, ranging from evaluation of individual deaths or adverse outcomes (i.e., perinatal audit) to the global level. The level of measurement depends upon the level on which the data will be used. Unfortunately, data are often collected and passed to the next level without guiding decision-making at the local level.

## 3. How often will the data be collected?

How often local indicators are collected is a local decision. Certain process indicators may need to be collected frequently to guide programmatic decision-making. For example, the number of women prescribed syphilis treatment will have implications for how much penicillin to order to avoid a stock-out. Outcome indicators may be collected annually, unless a BABIES community monitoring board is used. This is most often updated monthly.

## 4. Who will collect and analyze the data?

Part of the monitoring and evaluation plan that is often neglected or underestimated is the need to commit personnel time to data collection and analysis. The person or people responsible for collecting certain pieces of data should be clearly understood, and they should be trained in collection, recording, and analysis as necessary. Part Two gives more details on collection and use of data, and the CD-ROM includes texts on epidemiology and access to software for data entry and analysis.

## 5. What is the anticipated response in the program when changes in the data are observed?

Program managers often find themselves in a constant mode of reacting rather than acting on data. This situation can be avoided by a thoughtful process that starts with the decisions known to be taken routinely and the development of a plan to respond to data before a crisis develops. By working in the counter-clockwise fashion described in Part Two, Section III, the program manager can avoid such dilemmas.

**A way of thinking for monitoring and evaluation** – Program managers need to know regularly if the program is working well, and if the interventions were successful in reducing the “Opportunity Gap.” Local indicators must track processes, assess performance, guide interim management decisions, and be linked to periodic evaluations undertaken to determine if health outcomes are improving. Local indicators should also allow a program manager to continually test the validity, reliability, and completeness of the intervention strategy from both an individual patient and programmatic viewpoint.

In the monitoring and evaluation thought process, the two most important questions to be answered in Step 4 are:

**Is the program doing things right?** (Monitoring process)  
**Is the program doing the right things?** (Evaluating outcome)

The first question refers to the performance of activities and is monitored by process indicators. Process indicators can vary for two reasons—lack of resources and lack of performance. The lack of resources requires the program manager either to lower expectations or to identify additional resources. The lack of performance requires the program manager to reassess the program personnel in terms of motivation, skill, and knowledge. If lack of performance is the problem, the program manager has four options: hire, fire, train, or motivate.

The second question refers to the improvement in outcomes. Outcome indicators are used to measure the program's effectiveness. If outcome indicators are not reduced, either the wrong thing was done or the interventions known to be effective were not managed or conducted properly. (Program managers need to be cautious about the last statement. Since registration of stillbirths and newborn deaths is routinely underreported, many newborn programs experience an initial rise in the outcome indicators due to more complete coverage of the population and a capturing of more stillbirths and neonatal deaths.) If the status quo or the worsening of the outcome indicator is true, then a program may turn out to be less effective than planned for the following reasons: lack of resources to accomplish activities, lack of personnel performance to accomplish activities, invalid assumptions regarding the linkage of specific activities with the impact interventions, or invalid assumptions linking impact interventions with outcome. The latter occurs when non-evidence-based interventions are employed.

An integral part of any program is the development of measurable checkpoints or milestones in both time and direction. These directional indicators assist the program manager in assessing periodically whether the program is moving in the right direction and if it is expected to arrive on time. Interim evaluations may rely on process indicators, but the proof of success is in the outcome indicators.

Continually evaluating the effectiveness of a program is the most important thing the local indicators do. It is more important than making sure things are done right. Hence, it is more important to answer the question,

### Is the program doing the right things?

The if-then logic model for this question has the following sequence:

- ❖ **If** the impact indicators are not moving in a positive direction but the process indicators are, **then** the program manager must re-examine the assumed relationship between contributing factors and the determinants, revise the intervention strategy, and develop a new work plan.
- ❖ **If** the expected outcome indicator is changing in the appropriate direction, but the impact indicator is not, **then** the program manager must reexamine the assumed linkage between the impact intervention and the health problem, revise the intervention strategy, and develop a new work plan.
- ❖ **If** the program is doing things right (i.e., activities and process indicators are moving in a positive direction) but the impact and outcome indicators are not achieving the projected changes, **then** one conclusion is that the program is not doing the right things.
- ❖ **If** the outcome indicator is changing positively, **then** the program manager must reassess the need for the program and begin the program management cycle again.

#### 6. How can key stakeholders participate in developing the local indicators of the HMIS?

Key stakeholders must participate in the design of the HMIS and the choice of indicators. Stakeholders can be involved in data collection through focus groups (as participants or collectors) or exit interviews. They can also participate in the review of data analysis. Understanding both the process and outcome results empowers all the key stakeholders to participate actively in programmatic decision-making.

A process to ensure participation of key stakeholders in the development of local indicators should include activities to achieve:

- ❖ participation of all team members on the team to develop the indicator matrix in order to ensure ownership of the process to develop outcome, impact and process indicators;
- ❖ joint development of standards, service procedures, protocols, and guidelines;
- ❖ joint development of a monitoring and evaluation plan based on the major problems and concerns perceived by the community and the health care personnel;
- ❖ involvement of the community in data collection and analysis;
- ❖ creation of feedback mechanisms that reflect the concerns of all stakeholders; and
- ❖ support for action in response to problems.

## STEP

## 4

MONITOR PROGRESS AND  
EVALUATE OUTCOMES

## SUMMARY

**Monitoring** is an ongoing systematic process that provides information to make program management decisions. The monitoring system collects and tracks process indicators.

**Evaluation** is the systematic and scientific process of determining the extent to which an action or sets of actions were successful in the achievement of predetermined objectives. It involves measurement of adequacy, effectiveness, and efficiency of health services to reduce the “Opportunity Gap.”

An **indicator** is a measurement that, when compared to either a standard or a desired level of achievement, provides information about a health outcome or management process. An **indicator matrix** is a flow diagram that connects the different types of indicators in an outcome-impact-process model. The **local indicator process** is a series of interrelated activities involving all stakeholders that produces a set of outcome, impact, and process indicators.

In the local indicator thought process, the two most important questions to be answered in Step 4 are:

- Is the program doing things right?** (Monitoring process)  
**Is the program doing the right things?** (Evaluating outcome)

**The essential elements in a local indicator system include the following.**

- ❖ Every woman has a record of initial contact and an attempt is made to account for every pregnancy.
- ❖ Every birth has the mother accounted for and the newborn birth weight (or surrogate) measured.
- ❖ The local indicators are derived from the local BABIES matrix.
- ❖ In the local indicator system, maternal and perinatal death events should automatically trigger reviews that involve representatives from all of the stakeholders and are the basis for facility and district performance assessments.
- ❖ The process for determining district-specific indicators should be present in every district, and the training in the translation of data into information should be available in every district in at least a home-based course for health workers.

**There are three basic principles to follow when developing a local indicator system.**

- ❖ Keep it simple and participatory.
- ❖ Consider using BABIES from the start.
- ❖ Develop quality systems.

**There are four actions in the development of indicators of an HMIS.**

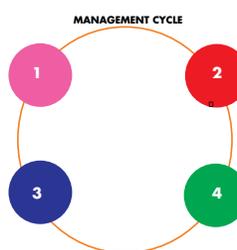
- ❖ Form a quality team.
- ❖ Select indicators.
- ❖ Map the indicator matrix.
- ❖ Review the results with the whole team and develop a plan.

**How is information used to monitor and evaluate newborn programs? The following questions should be asked and answered.**

- ❖ What indicators will be measured?
- ❖ Which sources will provide the data?
- ❖ How often will the data be collected?
- ❖ Who will collect and analyze the data?
- ❖ What is the anticipated response in the program when changes in the data are observed?
- ❖ How can key stakeholders be involved?

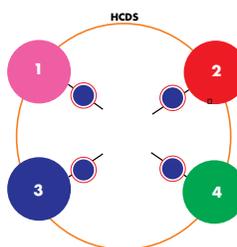
### III. SUMMARY: STEP-BY-STEP

The Introduction described the four main principles upon which effective newborn health programming depends. The programming model brings together all of these principles through the three key systems presented below with BABIES at its core.



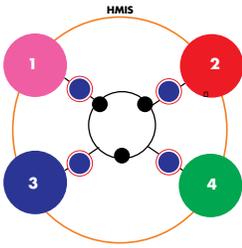
**Program Management Cycle:** This cycle is a step-by-step approach which helps the program manager define the problem, assess performance of the HCDS, prioritize and implement interventions, and monitor and evaluate results. This approach involves key stakeholders and uses data that are translated into information to systematically address local newborn health problems. The key actions and tasks for each step are outlined in Table 3.23.

The four-step cycle is not intended to end after the program manager and stakeholders have gone through the process once. This is an iterative process, to be used again and again. Each successive cycle will identify new problems, thus raising the program to a higher level of success through continual quality improvement, with the eventual disappearance of the “Opportunity Gap.”



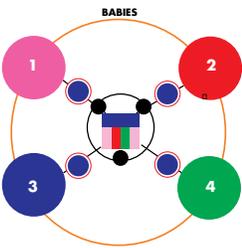
**Health Care Delivery System (HCDS):** This system is composed of three sectors – the informal/community components, the formal health care component, the intersectoral component – represented by the three concentric circles. ●

In order for the “Opportunity Gap” to be addressed, each component of the HCDS needs to be included in every step of the program management cycle. This approach defines the HCDS as a group of interrelated components that operate as a whole. The HCDS must come together to function in an effective and efficient manner if the program is expected to achieve its objectives. The level of available resources in each component in terms of manpower, materials, management skills, and money needs to be identified, assessed, and used in the planning of a program. It is important to include strategies, tasks, and responsibilities of each HCDS component in every program plan. Special efforts should be made to include the community.



**HMIS:** The core component of the program management cycle is an adaptable HMIS. Many HMISs focus solely on process-oriented indicators. They have displaced health outcome indicators with process indicators to assure program success. They have also developed as vertical programs designed to support national programs. They do not support local decision-making capabilities that are more likely to directly influence the quality of services provided to an individual mother and baby. With the more recent decentralization trend, local

program managers require the knowledge, skills, and resources to develop and use adaptable, responsive, cost efficient, yet simple HMISs. The local indicator system can be designed to supply the data needed for district, region, and country level decision-making information for programmatic decisions.



**BABIES:** BABIES is an important core element of the local HMIS for newborn health – therefore, the symbol is placed in the center of the programming model. Using the BABIES matrix, the program managers and stakeholders can define their problem(s), assess the performance of the HCDS, prioritize and implement effective interventions, and monitor and evaluate their success. The BABIES outcome indicators of birth weight mortality rates have both maternal and perinatal meaning.

This information can help the program manager determine the right things to do. Its use enables the indicator system to be outcome driven, yet serves as a programmatic link to the intervention packages and their process-oriented indicators in a logical and easily understood manner. This helps the program manager determine whether things are being done right in the local setting. This process enables all the components of the HCDS to use outcome and process indicators that are locally determined for program management, but still serves the needs at the regional, national, and international levels for informed decision-making.

**TABLE 3.23  
SUMMARY OF THE FOUR-STEP PROGRAM  
MANAGEMENT CYCLE WITH USEFUL TOOLS FOR EACH STEP**

	<b>HOW DO I INVOLVE STAKEHOLDERS?</b>	<b>HOW DO I USE INFORMATION TO CARRY OUT THIS STEP?</b>	<b>WHAT TOOLS ARE USEFUL FOR THIS STEP?</b>
<b>Step 1: Define the fetal-neonatal problem</b>	<p>Identify key stakeholders and form a team.</p> <p>Participate in meetings.</p> <p>Review data together.</p> <p>Develop a plan for participation.</p>	<p>Collect and examine existing and new data about fetal-neonatal deaths or specific conditions.</p> <p>Compare local results with a standard ("Opportunity Gap").</p> <p>Understand the "Opportunity Gap" for your population (who? where? when? why?).</p> <p>Identify the root causes.</p>	<p>BABIES to identify causal group (i.e., care during delivery). Use birth weight proportionate mortality rates.</p> <p>Epidemiology to give rates and description (who? when? why?).</p> <p>Qualitative methods (i.e., focus groups) to assess underlying causes.</p> <p>Health fishbone diagram to identify root causes.</p>
<b>Step 2: Assess performance of the HCDS</b>	<p>Assess if the core interventions are in place, accessible, affordable, and acceptable for clients.</p> <p>Assess client satisfaction of services.</p>	<p>Are the right interventions in place?</p> <p>What is the coverage of the "right" interventions?</p> <p>Are these interventions being done in the right way?</p> <ul style="list-style-type: none"> <li>• What is supposed to happen?</li> <li>• What do people think is happening?</li> <li>• What do people say is happening?</li> <li>• What is actually happening?</li> </ul>	<p>BABIES to identify potential services that are not being done right. Use birth weight specific mortality rates.</p> <p>Spider web to assess if core interventions are in place.</p> <p>Integrated health facility assessment to assess infrastructure, including standards for care, staff skills, drugs, and equipment.</p> <p>Quality tools, such as management fishbone diagram and histograms, to assess underlying reasons for poor performance.</p>

**TABLE 3.23**  
**SUMMARY OF THE FOUR-STEP PROGRAM**  
**MANAGEMENT CYCLE WITH USEFUL TOOLS FOR EACH STEP (CONT.)**

	<b>HOW DO I INVOLVE STAKEHOLDERS?</b>	<b>HOW DO I USE INFORMATION TO CARRY OUT THIS STEP?</b>	<b>WHAT TOOLS ARE USEFUL FOR THIS STEP?</b>
<b>Step 3a: Prioritize interventions.</b>	Discuss with stakeholders to ensure potential interventions are acceptable and affordable.	<p>What is the right intervention?</p> <ul style="list-style-type: none"> <li>• Addresses a locally important problem.</li> <li>• Evidence-based.</li> <li>• Cost-effective.</li> <li>• Feasible and sustainable.</li> <li>• Acceptable to community.</li> </ul>	<p>BABIES comparison to determine the “Opportunity Gap” to focus on what interventions might produce the most gain.</p> <p>Spider web and information on evidence-based interventions and international standard of care.</p> <p>Management countermeasure matrix to prioritize and assess feasibility.</p> <p>Management countermeasure matrix to identify strategies to implement interventions.</p>
<p><b>Step 3b: Implement interventions.</b></p> <p><b>Step 4 Monitor and evaluate.</b></p> <p><b>Return to Step 1 to repeat the cycle.</b></p>	<p>Involve stakeholders in collective action for implementation (resources, roles).</p> <p>Promote participation in monitoring the program.</p> <p>Involve stakeholders in assessment of impact.</p>	<p>What is the right way to implement this?</p> <ul style="list-style-type: none"> <li>• <b>What are the goals and objectives?</b></li> <li>• <b>What interventions will achieve our objectives?</b></li> <li>• <b>Where?</b> Which sectors of the HCDS and in what geographic location?</li> <li>• <b>By whom?</b></li> <li>• <b>When?</b></li> <li>• <b>Cost?</b></li> <li>• <b>How?</b> Cross-cutting strategies.</li> </ul> <p>1. What do I need to know to assess if I am doing this right?</p> <p>2. What do I need to know to see if my program did the right things right and had an impact?</p> <p>How is information used to monitor and evaluate newborn programs? The following questions should be asked and answered.</p> <ol style="list-style-type: none"> <li>3. What indicators will be measured?</li> <li>4. Which sources will provide the data?</li> <li>5. How often will the data be collected?</li> <li>6. Who will collect and analyze the data?</li> <li>7. What is the anticipated response in the program when changes in the data are observed?</li> <li>8. How can key stakeholders be involved?</li> </ol> <p>Evaluate outcome indicators at a certain date.</p>	<p>Cross-cutting strategies include:</p> <ul style="list-style-type: none"> <li>• creating partnerships;</li> <li>• empowering communities;</li> <li>• promoting healthy behavioral change;</li> <li>• building capable institutions; and</li> <li>• advocating for supportive policies.</li> </ul> <p>Select local indicators carefully.</p> <p>Plot data in BABIES over time.</p> <p>Basic data analysis skills.</p> <p>Epidemiology to assess impact.</p>

## "BRING IT ALL TOGETHER" SUMMARY OF TOOLS USED IN STEP-BY-STEP APPROACH

Parts Two and Three provided tools and a process to assist the program manager. This section summarizes how some of the tools can be sequenced to enhance the program manager's ability to better design, implement, and evaluate programs. These tools are outlined in Table 2.22. The following sequences will be demonstrated to clarify the process.

- ❖ **Using the BABIES matrix to fishbone diagram to identify problems and focus on the interventions.**
  - ❖ **Using the health fishbone and countermeasure matrix to develop an action plan.**
  - ❖ **Using the management fishbone and countermeasure matrix for monitoring and evaluating interventions.**
- A. Using BABIES matrix to identify problems and focus on the interventions.**

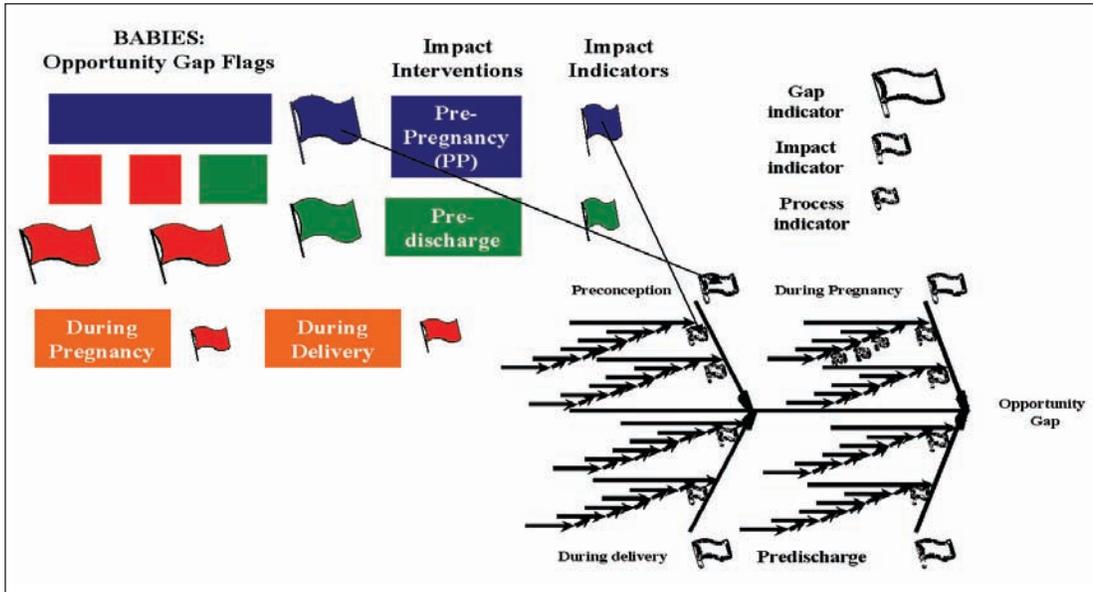
Every local HMIS system should strive to provide the most information with the least amount of data. The BABIES matrix does this by using two variables to calculate the various rates and ratios by changing the denominators of the 12 cells. These rates are made more functional by grouping the cells into the Intervention Packages and calculating the combined cells' rate. Once the combined cells' rates are available, they are compared to the selected standard population. The problem area ("Opportunity Gap") and relevant Intervention Package(s) can be identified. Describing BABIES in the simple epidemiological determinants of time, place, and person provides preliminary insight for formulating hypotheses to determine the cause of the "Opportunity Gap".

As described in Part Two, the fishbone diagram provides the program manager with a tool to link the "Opportunity Gap" with its cause. Figure 3.9 provides a figurative example of the results that may be put forth from the BABIES matrix and placed into the fishbone diagram. There are four major problem categories and subsequent intervention time periods (i.e., pre-pregnancy care, care during pregnancy, care during delivery, newborn care). Program managers can start with facility-based data (health centers and hospitals) but should develop population-based surveillance as soon as possible.

The following symbols are used in Figure 3.9 to illustrate the transition from BABIES to the health fishbone:

- ❖ Large flags: the "Opportunity Gap;"
- ❖ Boxes: Intervention Packages;
- ❖ Fishbone: Each major line (bone) under a major category is an impact intervention;
- ❖ Midsize flag: Impact indicator;
- ❖ Small line: A potential "why" question that is asked to determine the cause; and
- ❖ Smallest flag: Represents a process indicator associated with a "why" for an intervention.

**FIGURE 3.9**  
**USING THE BABIES AND THE HEALTH FISHBONE**  
**AS TOOLS TO IDENTIFY A PROBLEM AND ITS ROOT CAUSES**



For example, if the “Opportunity Gap” is in the cells that indicate pre-pregnancy health is the main problem, the Pre-pregnancy Health Intervention Package would be appropriate. Presented below is an example of the process that might be carried out by the program manager to address pre-pregnancy care.

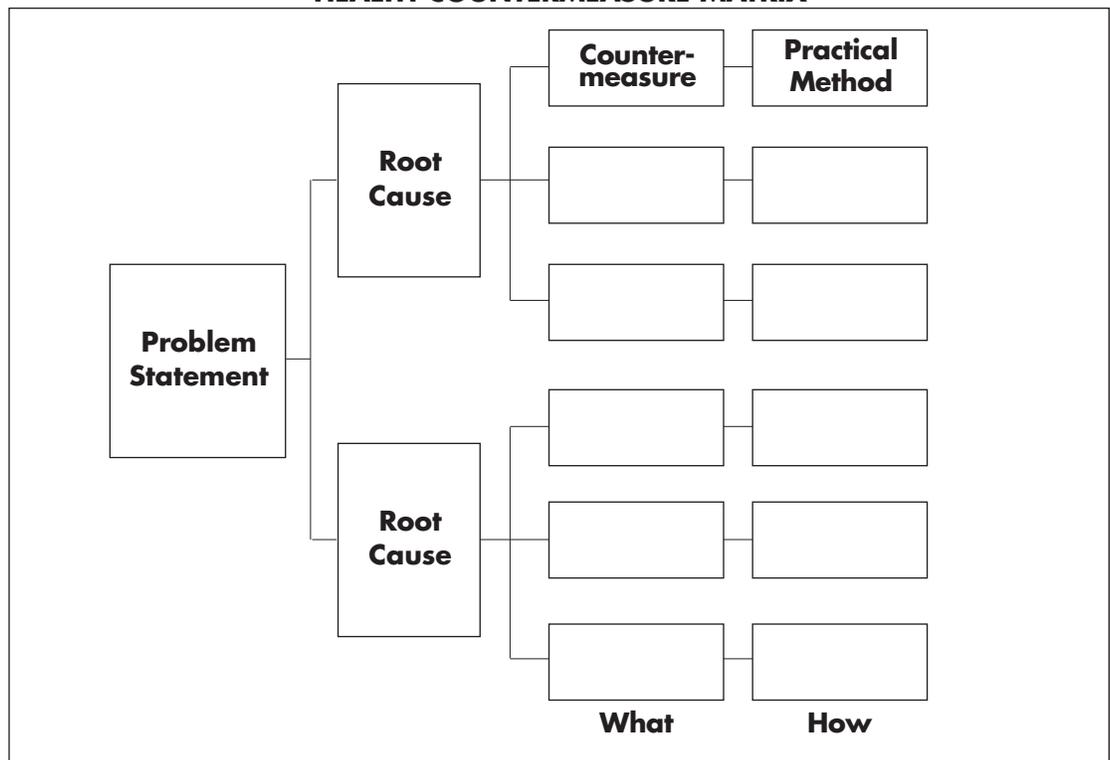
- ❖ **Intervention Package:** Pre-pregnancy Care is identified in Step 1 of the Step-by-Step Approach as the priority problem. The “Opportunity Gap” from BABIES indicates that there is considerable potential for reducing the excessive mortality.
- ❖ **Package Component of Intervention Package:** Pre-pregnancy Intervention Package consists of family planning, maternal nutrition, avoidance of substance abuse, anticipatory guidance regarding birth planning, treatment of medical conditions not related to pregnancy (diabetes, hypertension), and prevention and treatment of STIs among women of reproductive age.
- ❖ **Key Intervention Strategy:** Based on Step 2 and using the fishbone diagram to assess local performance of the health care delivery system, family planning was found to require improvement. Interventions could be prioritized and designed to address weaknesses identified.
- ❖ **Select outcome indicator:** Based on the activities selected above, appropriate indicators (represented by the flags in Figure 3.9) can be developed. In this case, age at first pregnancy may be a relevant indicator.
- ❖ **Select impact indicator:** A deviation from the expected or desired value of the indicator (flag) triggers an investigation as to “why” the indicator is not at the desired level. If a program manager was monitoring age at first pregnancy and it was not increasing, the program manager might begin asking questions about why not?

- ❖ **Process indicator:** In addition, based on the activities selected appropriate indicators (represented by the flags in Figure 3.9) can be developed. A deviation from the expected or desired value of the indicator (flag) triggers an investigation as to "why" the indicator is not at the desired level. Five "why" questions are usually asked to determine a root cause. When a "why" statement is identified that can be acted upon, a cloud is drawn in the fishbone to indicate an "actionable" element. The actionable elements are seen as the "root cause" of the "Opportunity Gap." The smallest flags represent the process indicators that can fall into three categories — output, the 5 A's, or input. The actionable element is transferred to the countermeasure matrix as a "root cause" in the next figure.

**B. Using the health fishbone and countermeasure matrix to develop an action plan.**

The health countermeasure matrix (Figure 3.10) starts with the same problem statement in the health fishbone diagram (the "Opportunity Gap" indicator). The root causes, the actionable elements in the health fishbone, are placed in the appropriate box. For each root cause a countermeasure is identified (i.e., "what can be done" to counter the root cause). The practical method is "how" the countermeasure can be implemented. The program manager assesses the effectiveness and feasibility of each of the practical methods and chooses those most likely to be successful. The action plan is developed for each of the practical methods. For each of these activities, a process indicator can be identified. These are transferred to the management fishbone.

**FIGURE 3.10  
HEALTH COUNTERMEASURE MATRIX**



**C. Using the management fishbone and countermeasure matrix for monitoring and evaluating the interventions.**

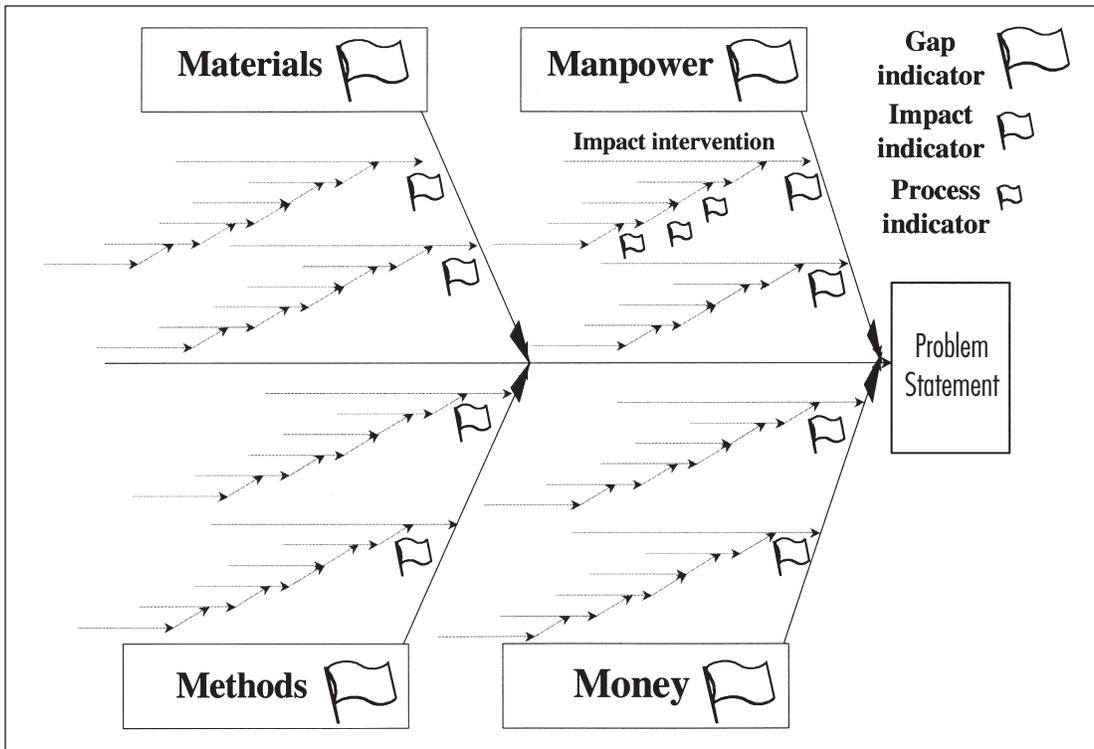
The program manager needs to know regularly the answer to two important questions to reduce the “Opportunity Gap.”

- Is the program doing things right?** (Monitoring process)
- Is the program doing the right things?** (Evaluating outcome)

The adapted tri-level monitoring and evaluation procedure is used as described in Step 4, Part Three. In its simplest form, this procedure is an if-then logic model. **If** the program performs the right evidence-based activities in the right way, **then** there will be a positive effect on a health problem that should alleviate the health problem. This procedure assists the manager in identifying a management problem.

This management problem is placed at the head of the fishbone as the problem statement (Figure 3.11). The major categories are usually the materials, manpower, methods and money. Other categories, however, that might arise from a brainstorming session of the local quality team, may also be very appropriate for the local setting.

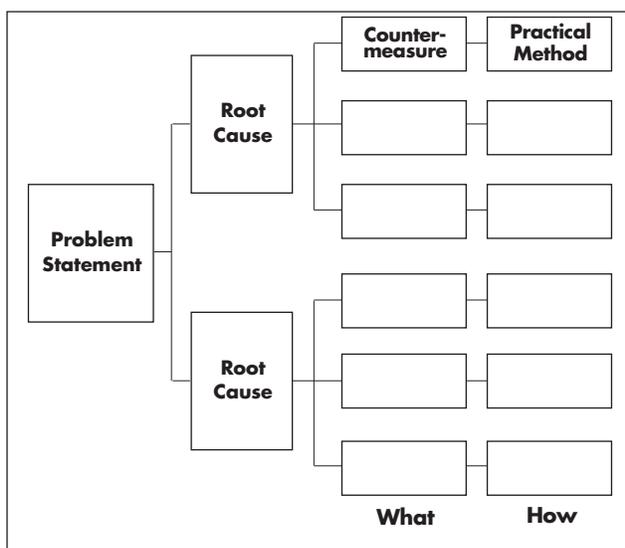
**FIGURE 3.11  
MANAGEMENT FISHBONE**



The management fishbone provides the manager with the format to identify the appropriate indicators for the quality process. The performance of the process indicators is what triggers a local response to determine what is going wrong with the program. The data for these indicators are probably not collected on a routine basis. In the management fishbone, the time period is much shorter and hopefully the problem is quickly resolved. If the manager decides that the solution needs to be standardized, the indicator may be incorporated into the data routinely collected so the indicator is constantly reviewed.

The management countermeasure matrix (Figure 3.12) starts with the same problem statement in the management fishbone. The root causes (the actionable elements in the fishbone) are placed in the appropriate box. For each root cause a countermeasure is identified (i.e., "what can be done" to counter the root cause of the management problem). The practical method is

**FIGURE 3.12  
MANAGEMENT COUNTERMEASURE MATRIX**



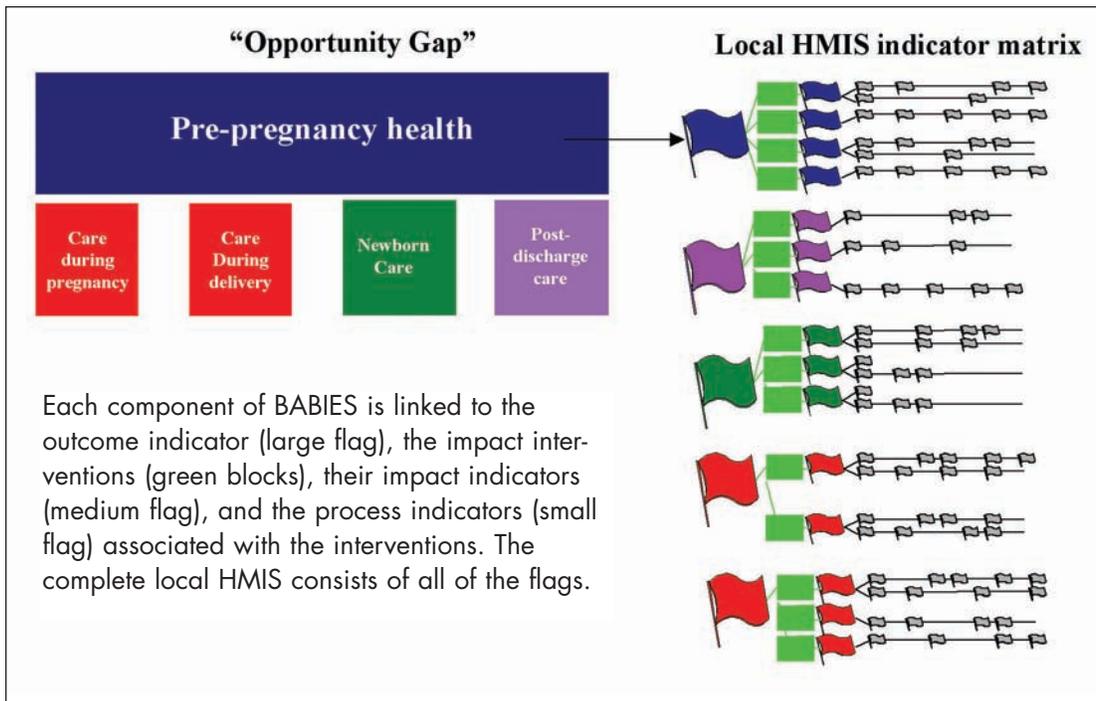
“how” the countermeasure can be implemented. The manager assesses the effectiveness and feasibility of each of the practical methods and chooses those most likely to be successful.

The cycle is completed by a review of BABIES. Each component is reviewed and the impact indicators assessed. The review results in a description of the remaining “Opportunity Gap” and an assessment of the performance of the health care system, and thus the cycle starts over again.

All of the indicators in the BABIES matrix and the fishbone diagram constitute the local HMIS indicator

matrix. This flowchart (Figure 3.13) provides a visual representation of the local indicator system that is developed and supported by all the stakeholders. Not all the flags in the local HMIS matrix need to be filled with an indicator. The type and number of indicators will vary from one situation to another.

**FIGURE 3.13**  
**BABIES AND A COMPLETE LOCAL HMIS INDICATOR MATRIX**



The BABIES matrix, the fishbone, the countermeasure matrix, and the action plan provide program managers with a structure that coincides very well with the step-by-step approach. In a given situation, each tool might be used in more than one step. Each tool lends itself to being the starting point of the next tool. The other quality tools described in Part Two, Section V supplement these four and serve to strengthen the capacity of the program manager to define a local HMIS that supports the development of quality services for the mother and newborn.