


The Census-Based, Impact-Oriented Methodology: *A Resource Guide for Equitable and Effective Primary Health Care*



 Curamericas and
CORE The CORE Group

David Shanklin & Donna Sillan

April 2005

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The CORE Group is a Membership association of more than 35 US Private Voluntary Organizations (PVOs) that work together to promote and improve primary health care programs of women and children and the communities in which they live.

The CORE Group's mission is to strengthen local capacity on a global scale to measurably improve the health and well being of children and women in developing countries through collaborative NGO action and learning. Collectively its member organizations work in over 140 countries, supporting health and development programs. Partial support for this document was provided by the CORE Group with funds from USAID Cooperative Agreement FAO-A-00-98-00030. This publication does not necessarily represent the views or opinion of CORE or USAID. Any portion of this publication may be reproduced if credit is properly given to the authors and Curamericas.



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Abstract

The Census-Based, Impact-Oriented (CBIO) methodology is a proven approach to primary health care service provision in developing countries that allows local health providers to understand, effectively treat, and accurately measure outcomes and impacts for the most commonly found causes of unnecessary suffering, sickness and death within their communities. The CBIO methodology ensures: 1) scarce resources and services are appropriately targeted to the most common causes of avoidable illness and death; 2) service outreach and utilization are equitable, reaching those of greatest need within targeted communities; and 3) outcomes and impacts (including changes in mortality) are well measured.

Sufficient detail is provided by this reference manual to successfully implement a CBIO program. If the reader is unsure of this approach in a given setting, the authors provide information in chapters one through three to decide if this strategy is appropriate. If it is, chapters four through nine lead the reader through the complete process. A list of references and resources offers extensive reading for those who are motivated to learn more about the CBIO methodology or about supporting tools and strategies.

ACKNOWLEDGEMENTS



Curamericas has developed a model of health service delivery that is saving children's lives and improving the well-being of families and communities in Bolivia, Guatemala, Haiti and Mexico. It is called the Census-Based Impact-Oriented (CBIO) approach to primary health care. After using this methodology for more than 20 years, Curamericas seeks to share this model with the child survival and primary health care communities. The CBIO approach is a community-based primary health care model that allows local health care staff to better understand and more effectively treat the most common causes of sickness and death within their communities. Because of its unique approach to measuring community health, the CBIO methodology provides a basis to accurately measure health service outcomes and impacts, including mortality reduction. It is the hope of these authors that health program leaders, directors, managers and staff will find this manual useful and inspiring, in order to promote the global goal of health care equity.

The companion compact disc (CD) of this manual includes two additional interactive files: a compendium of typical data collection forms, and a set of training materials prepared by Donna Sillan.

Curamericas would like to recognize its NGO partners, without whom this reference manual would not be possible. They include:

- In Bolivia, *Consejo de Salud Rural Andino* (CSRA)
- In Guatemala, *Curamericas – Guatemala*
- In Haiti, *The Foundation of Compassionate American Samaritans* (FOCAS), and their two in-country partners, *Mission Evangelique Internationale* (MEI), and *Oeuvres de Bienfaisance et Developpement Communautaire* (OBDC)
- In Mexico, *Asociación Internacional de Salud Pública AC* (AISPAC)

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The CBI O approach is a community-based primary health care model that allows local health care staff to better understand and more effectively treat the most common causes of sickness and death within their communities.



Gillens (FOCAS), **Bette Gebrian** (Haitian Health Foundation), **Nat Robison** (CSRA), **Ramiro Llanqué** (CSRA) and **Dardo Chavez** (CSRA).

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Henry Perry (Future Generations), and **Warren and Gretchen Berggren** (Save the Children, World Relief), working with **John Wyon**, largely created the strategy we now call the CBIO methodology. We salute their continuing contributions to the CBIO methodology, as well as to community-based primary health care. We greatly appreciate Henry's early review of materials that led to the preparation of this manual.

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The Spanish translation of this document was provided by **Maria "Chepita" Joya**, and it was edited by **Gladys Soruco Shanklin**.

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DEDICATION

This reference manual is dedicated to

Dr. John Wyon

*Rest in eternal peace John, confident of your
good works upon this earth.*

CHAPTER ONE

Overview of the CBIO Methodology



How to Use This Manual

This document is intended to serve as a simple primer for those who are interested in applying a systematic approach to the provision of community-based Primary Health Care (PHC) in a developing country setting. The Census-Based, Impact-Oriented (CBIO) methodology ensures: 1) scarce resources and services are appropriately targeted to the most common causes of avoidable illness and death; 2) service outreach and utilization are equitable, reaching those of greatest need within targeted communities; and 3) outcomes and impacts (including changes in mortality) are well measured. Inevitably in these settings, women of reproductive age and children under the age of five years are found to be at high risk of illness and death, and providers of Child Survival (CS) health services will also benefit from this methodology.

Sufficient detail is provided by this reference manual to successfully implement a CBIO program in your health program area. If you are unsure about the appropriateness of this approach within your target population, we provide further information below, and in the following two chapters, to allow you to decide if this strategy is right for your program. If it is, chapters four through nine lead you through the process, from beginning to end. (It never really ends!) A list of references and resources offers extensive reading for those who are motivated to learn more about the CBIO methodology.

What is the Census-Based, Impact-Oriented (CBIO) Methodology?

Historically, the Census-Based, Impact-Oriented (CBIO) methodology is an outgrowth of a tradition of prospective, longitudinal field studies of mortality, fertility and migration in relatively small, defined communities which began in the 1950s under the leadership of Dr. John Gordon, then Professor of Epidemiology at the Harvard University School of Public Health. Several classic studies have resulted from this approach, led by others now well known in international public health:

- **Dr. John Wyon**, leading the Khanna studies in India (Wyon and Gordon, 1971)
- **Dr. Carl Taylor**, leading the Narangwal studies in India (Kielmann, et al, 1983, Taylor, 1973)

The CBIO methodology ensures: scarce resources and services are appropriately targeted to the most common causes of avoidable illness and death; service outreach and utilization are equitable, reaching those of greatest need within targeted communities; and outcomes and impacts (including changes in mortality) are well measured.

- **Drs. Warren and Gretchen Berggren** leading community-based studies in Haiti through Hospital Albert Schweitzer (Berggren, Ewbank, and Berggren, 1981)
- **Dr. Henry Perry** undertaking rural health programming in Bolivia (Perry, et al, 1998)

The CBIO methodology is an approach to health care service provision that allows local health care providers to better understand, more effectively treat, and accurately measure outcomes and impacts for the most commonly found causes of unnecessary suffering, sickness and death within their communities. What do we mean when we say “*better understand*”? The common approach to PHC provision traditionally is to establish facility-based health services in a particular location(s), with the assumption that well established clinical protocols and treatments will be applicable to all those who enter for care. Unfortunately, this may be true part of the time, but we have found many different causes of illness and death, and these vary considerably from country to country, department to department, even community to community. Thus, learning about the unique patterns of local illness and death, and their underlying causes is necessary to a complete diagnosis and effective treatment within the CBIO approach.

... learning about the unique patterns of local illness and death, and their underlying causes is necessary to proper diagnosis and effective treatment within the CBIO approach.

When we say “*more effectively treat*”, we mean that most health providers will assume that the public will seek out their services when needed. We have found this assumption also is not well founded. Of course, when one has a physical accident, like a broken bone or an infected tooth, symptoms may be so obvious (and painful!) that care will be sought immediately. However, families are unaware of many signs and symptoms of their illnesses, or will postpone treatment to ‘see if it gets better by itself.’ Further, many families who know they have a health problem do not believe they are entitled to, nor believe they are able to pay for local health services. Or, they may not trust those services to effectively treat their problems, or they fear that they will be treated badly by the health staff. The CBIO approach attempts to systematically overcome these common barriers to effective health care treatment by: learning about the local causes of illness and death; creating strategies that directly address those causes; and by proactively seeking out ‘high risk’ families, providing targeted and appropriate health education messages and treatment. This ultimately creates an informed service population who will actively seek health care when it is necessary to do so.

When we say “*accurately measure outcomes and impacts*” we mean that the CBIO approach allows us to more precisely measure program results than almost any other strategy. How is this so? By developing and maintaining a census of the targeted service population, we have the basis, the mathematical ‘denominator’, against which all services received and outcomes achieved will be compared. For example, we will know exactly how many women of reproductive age (WRA; usually 15 – 49 years of age) are in our population, we will know what kinds of services they received, and we can quite accurately estimate the service coverage received, and further, compare this with any behavioral outcomes of interest to us

(through service data or through periodic household surveys). This is a much more accurate approach than, say: depending upon clinic usage data and disaggregated national census data to generate coverage estimates. It is better because clinic data measure only women motivated and able to seek out clinic services, ignoring all the other women who did not receive services for whatever reasons. And, because such facility-based outcome results are based on (most likely) out-of-date or inaccurate census projections, these calculations may result in systematic under or over reporting of coverage.

The situation in facility-based PHC may even be worse for indicators such as immunization coverage, which often is measured by counting the number of doses distributed (whether or not they are received), or by counting ‘heads’ of children who receive the doses (whether or not the immunizations are timely, or that the children actually need that particular immunization) and divided, again, by an often unreliable projection of the childhood population. Of course, surveys could be used to more accurately estimate the proportion of children who received their immunizations appropriately (*if* child immunization cards are in systematic use locally), but then that data would not be useful for local programs to target those who have missed their immunizations, or those who are ready to begin.

Advantages of the CBIO Approach

We have already mentioned some of the most important reasons to consider the CBIO approach to community-based PHC provision. A more complete listing of reasons will include:

- Scarce resources are precisely targeted to local causes of illness and death through the assessment of local health needs and the use of census data.
- Many more people will be reached in a timely manner with appropriate education and treatment because of proactive outreach and communication activities, based upon census data and the use of community maps.
- CBIO health providers frequently develop a closer working relationship with ‘high risk’ families since they see them regularly, resulting in more trust of the health program, and better acceptance of important health messages.
- Traditional non-users of health services (who frequently are the sickest within a community) are sought out, making health care access and treatment more equitable and creating greater impact.
- Measurable outcomes in areas where the CBIO approach has been used are more precise than many other methods, and usually demonstrate remarkable results that would not have been realized through facility-based PHC alone.



Traditional non-users of health services (who frequently are the sickest within a community) are sought out, making health care access and treatment more equitable and resulting in greater impact.

Why is Equity of Health Care an Issue?

Equity of health care access and use is actually a *huge*, though too often overlooked concern of public health. We are concerned about equity because we believe that

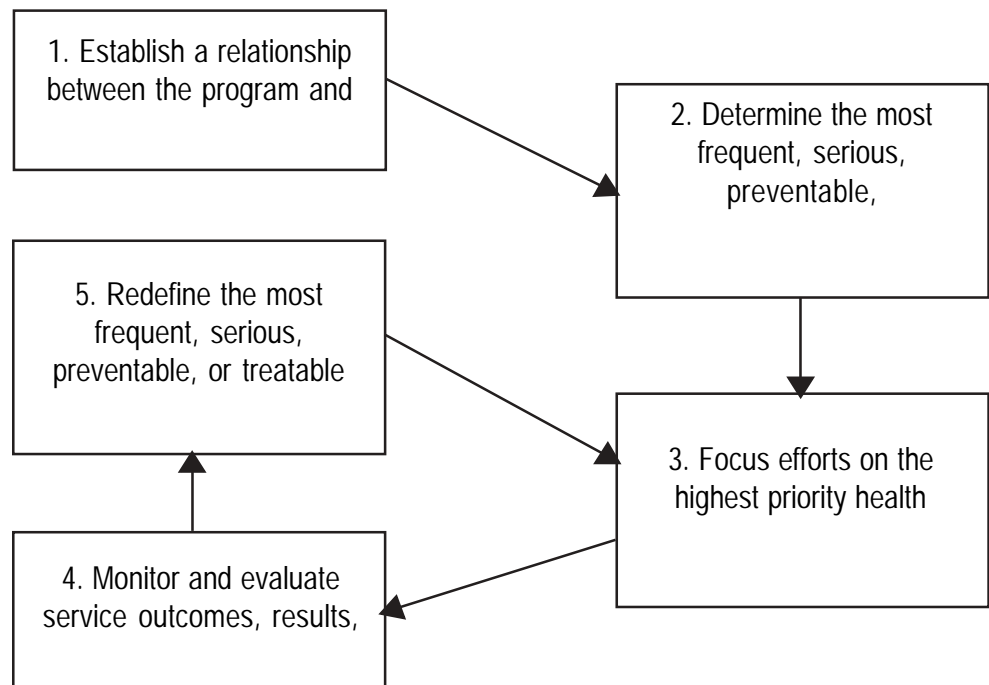
... individuals and families who are less well educated, with fewer resources available to them, with weaker social ties, with inferior social status, and the like ... do not believe they have the right to decent health care, and in many cases, are passively or actively discouraged from using public services.

all individuals of a society should be able to receive basic health services that allow them to survive and thrive, contributing to the overall wellbeing of their families, communities and nation. Even within small rural communities that appear homogeneous to the casual observer, we find individuals and families who are less well educated, with fewer resources available to them, with weaker social ties, with inferior social status, and the like. These families simply do not believe they have the right to decent health care, and in many cases, are passively or actively discouraged from using public services. Further, clinicians often are the last to understand the many perceived and real barriers of these families, do not leave their health facilities to seek out this information, and *do not know what they do not see*. We believe overcoming these biases and barriers is an important responsibility of the health care system, in order that families may thrive in a setting free of prejudice and inequality.

The CBIO health approach focuses on serving all members of the project communities. “*The reach is tremendous,*” says Judy Gillens of FOCAS. She explains, “*The most important thing [about the CBIO approach] is that you can capture all the people within your community; you can catch those who are on the fringe[s of health care].*” Henry Perry, who helped found the CBIO approach, asserts that it takes a “*deep philosophical commitment to improving the health of a population*” in order to engage in the method. In Perry’s opinion, organizations that use CBIO need to be prepared for a long-term commitment, and they must be committed to demonstrating improvements.

Key Steps of the CBIO Approach

The following schematic diagram briefly summarizes the CBIO approach, and will be referenced in the remainder of this manual:



The CBIO approach is implemented as follows. First, a health agency forms a relationship with the communities to be served. (This health agency may be a non-governmental organization, NGO, or may be a government health service, or a partnership of agencies.) Health needs are then identified through a census of all households in the community, input from residents, secondary data, a statistically representative survey of Knowledge, Practices and Coverage (KPC), and/or other formative research. A retrospective mortality study is done during the census process in order to get a ‘first look’ at the levels and patterns of childhood and maternal deaths in the area.

Program planners then focus their interventions on the most pressing health challenges of the area identified during this initial assessment, as well as key health services perceived to be of high priority to the community. Selected health interventions are offered by health staff and volunteers through home visits, group meetings, care groups, local health facilities, and through referral. Program service provision is documented, and program outcomes assessed using health program and census data. Mortality impact is measured by tracking vital events, and knowledge, practice and coverage indicators are monitored through periodic surveys. A critically important feedback loop also is included in the methodology. An annual re-assessment of health program outcomes and local health priorities allows program staff to modify their interventions and meet the changing needs of the communities they serve. All of these activities are conducted with the full inclusion of communities, based upon written agreements, and during structured exercises with participating community leaders, members, and health volunteers.

Three Sets of Measurement Tools

The CBIO system includes three sets of data-gathering and analysis tools that are used to monitor and assess health outcomes and impact, including mortality reduction, in a project area.

1. Census and baseline assessment

A census of all households in the project area is conducted by project staff before or during project start up. All individuals in the community are counted and segmented into sex/age categories such as children under the age of five and women of reproductive age. Detailed maps of each community are drawn so that all families with children under five and women of reproductive age can be identified and visited. Houses are numbered to both facilitate locating families, and to link these dwellings to family health folders. The census then is updated at least once each year.

Baseline health data on families are collected by reviewing existing local health facility records, conducting a representative health survey, and by holding group meetings and interviews with community members. These data will include information on family health knowledge, practices, their receipt of health services, and their opinions and recommendations regarding desired health care services. While data collectors conduct the baseline health survey, they also record the reported deaths

All of these [CBIO] activities are conducted with the full inclusion of communities, based upon written agreements, and during structured exercises with participating community leaders, members, and health volunteers.

Registers to track specific health problems are used in order to more easily identify, successfully treat, and appropriately manage multiple individual cases.

during the past twelve months of all preschool children (less than five years of age), as well as women of childbearing age. They collect information on the gender and the age of the child, the age of the woman, as well as the principle causes of death. The objective of this retrospective mortality study is to better understand *the pattern* of local deaths. Implementing organizations have found that this pattern of deaths may vary widely in different areas of the same country. This level of detail in data gathering allows program planners to identify maternal and childhood death patterns for a specific project area and to target interventions accordingly. To respond to regional mortality variations, the same program may need to initiate different health promotion and intervention strategies in each region.

2. Health services and health status tracking system

In the CBIO model, health services are tracked using family health folders and selected registers. A family folder includes information on all members of each family and is maintained at the health post or clinic. Additionally, registers may be kept on different age/sex groups in order to more closely monitor and serve clients. These groups could include: women of reproductive age; pregnant women; infants; and preschool children in the project area. Registers also may be maintained for specific health problems, such as malnutrition or tuberculosis. For example, a woman's register may be used to record data on her family planning usage, prenatal care, tetanus toxoid (TT) doses, health topics on which she received education and other services. Registers to track specific health problems are used in order to more easily identify, successfully treat, and appropriately manage multiple individual cases. For example, a childhood malnutrition register might include the dates and growth measures of children recognized as malnourished, the subsequent nutrition education lessons given and dates received, supplemental foods provided, clinical services received to treat the underlying illnesses that may have provoked faltering growth, and further growth monitoring results and dates as the cases are prospectively managed.

3. Vital events and verbal autopsies

Births, deaths, and migration into and out of the project area are tracked in a vital events registry. These events are usually recorded by community health workers (CHWs) and are included in their monthly reports.

Project staff (CHWs or supervisory-level staff) routinely conduct verbal autopsies for preschool children, and women who die during pregnancy or delivery, or within 30 days after delivery. During data collection, basic information is recorded on the person who died, the probable cause(s) of death, and the circumstances leading up to the death (especially in terms of health service delays that may be linked with the death). The causes of death are then reviewed and finalized by a medical supervisor. Verbal autopsies and the aggregated mortality data are analyzed during mortality review meetings every three, six or twelve months.

Mortality review meetings are important not only for gathering information on deaths in a project area; they are an essential tool for continuous quality improvement

(CQI). In the meetings, multi-level staff teams review and discuss deaths that occurred during the previous period. Team members consider a wide variety of information and try to identify preventable causes and patterns that may exist. Staff members then list the facts known about the deaths in order to elicit potential health service barriers that may exist. This regular review of deaths allows program planners to identify emerging health challenges in the community, as well as to pinpoint elements within their own programs to be improved. Once preventable causes are identified, staff members discuss opportunities for improvements in their protocols and interventions in order to prevent additional deaths in the future.

Three Coverage Strategies

The CBIO approach employs three basic methods for reaching target populations with health promotion and other primary health care services. The combination of methods used depends on the local context of each project. For example, in the context of Curamericas' programs, care groups have been successfully used in areas of Guatemala and in Haiti, while home visits and group meetings have worked well in Bolivia. Each Curamericas project uses a locally-appropriate blend of the following coverage methods: systematic home visitation, group meetings, and care groups. The blend and pattern of contacts with women and children is determined using information from baseline assessments, taking into account the timing and principle causes of death of the population. (For example, if 50 percent of all childhood deaths in a project area occur during the first four months of life and the majority are due to diarrhea, interventions to promote exclusive breastfeeding, to reduce diarrheal incidence, appropriate home management, and the timely seeking of health services will be heavily targeted to the prenatal and postnatal periods, rather than later in the infant's first year.)

1. Home visits

Curamericas' CBIO method was originally developed with its NGO partner *Consejo de Salud Rural Andino* (CSRA) in Bolivia. The first project was implemented in the Altiplano region, the rural highlands of Bolivia. Villages in this region are widely disbursed, and CHWs may walk for hours each day to reach the children and mothers within their care. Curamericas later successfully introduced home visits into CBIO health programs in Haiti, Guatemala, and Mexico.

Through home visitation, health workers and volunteers have direct contact with the families whom they serve and have the opportunity to proactively identify and address many health problems before they reach a crisis point. Each health worker is assigned to a clearly delineated 'catchment' (target) area and is responsible for monitoring the health status of all residents within that area. By visiting people's homes, the health program is able to interact with those individuals who otherwise may never visit a health post or clinic. When health workers are out walking or bicycling through an area month after month and year after year, they build a strong, trusting relationship with each family. This relationship facilitates acceptance of new health concepts and behaviors among communities who otherwise might ignore or reject them.



When health workers are out walking or bicycling through an area month after month and year after year, they build a strong, trusting relationship with each family. This relationship facilitates acceptance of new health concepts and behaviors among communities who otherwise might ignore or reject them.

reject them. Interventions such as health promotion, growth monitoring, deworming, and vitamin A supplementation are standard home visit components. In other program areas, CHWs treat diarrhea and pneumonia with antibiotics, and give immunizations. Additional activities may depend on the situation health workers find when they arrive at the front door of a home. All interventions and vital events are recorded in the family's folder.

2. Group meetings

In this approach, health education and selected health services are offered in a centralized community location on a given day to reach a specific catchment area population. The practice of holding group meetings is more efficient and cost effective than using only home visits because health workers can reach many more clients at the same time, reducing the labor costs of individual home-based sessions. A group meeting is often timed to coordinate with a community event, such as a market day, that will already draw many villagers into the village center. At the end of the group meeting, CHWs review their folders and/or registers to see which children and women were in need of contact but did not attend. They then will follow up with home visits to these families to assure complete and equitable coverage.

3. Care groups

In recent years, some census-based projects have started using care groups to improve the intensity, efficiency, and equity of their coverage. The care group strategy was developed and first used extensively by World Relief in Mozambique. It now has been tested by World Relief, Food for the Hungry, and Curamericas in multiple country settings with impressive results (including positive changes in behavior change indicators and child mortality rates). This method relies on volunteers who carry health education messages and some services to each household with preschool children while bringing program service and vital events information back to project staff.

By training volunteers who then educate their neighbors, project staff members are able to expand the reach and intensity of their health promotion, and to do so at lower cost.

Community volunteers are responsible for visiting and educating about ten families in "blocks" or areas. Ten to fifteen of these volunteers, representing a combined service population of 100 to 150 families, then form a care group. Each care group has one paid staff person (an Animator) who guides them through training, reporting on the progress of home visits, planning, and evaluation. By training volunteers who then educate their neighbors, project staff members are able to expand the reach and intensity of their health promotion, and to do so at lower cost.

CHAPTER TWO

Evidence Supporting a CBIO Approach



The CBIO methodology has been repeatedly evaluated and its results reported in peer review journal articles, through professional presentations, and in many donor project reports. (These sources are cited in the References & Resources section.) Organizations that have used the CBIO approach praise the method and report that it: allows them to measure decreasing childhood mortality, provides pathways to community input and ownership, and ensures equity of health service delivery through pro-active contacts with hard-to-reach, high risk families.

Mortality

During the past fifteen years, CBIO projects have demonstrated results in lowering infant and child deaths, suggesting that their shared strategy creates lasting change. “Without the census-based, impact-oriented approach,” says Tom Davis with Food for the Hungry, “you cannot be sure that your interventions are making a difference in mortality. Many child survival programs demonstrate changes in behavior. However,” as Davis explains, “a change in behavior does not mean you are reducing mortality. Some mortality patterns and causes are local. So if you do not measure mortality locally to learn the different causes of death and the different timing of death, you do not necessarily know your pattern [and causes].”

When census and vital events data identify local mortality trends, interventions can be targeted to the specific needs of the target communities. “This level of detail allows health workers to deal with individual specifics rather than population estimates as most other child survival projects do,” says Mary DeCoster at Curamericas. “If someone does not come in [to a health post] we know they are being missed and can send someone to follow up.”

Recent results from Haiti offer confirmation of CBIO mortality impact. (Berggren et al, 2003) There, one NGO project area reported a reduction in under-five mortality of 31 percent (from 68 deaths per 1,000 live births to 47 per 1,000) over a four year period (1999-2002), even as the program added new target populations and introduced new services. In another, more stable NGO service area, mortality rates dropped by 65 percent during the same time period, from an initial 186 deaths per 1,000 live births, to 66 per 1,000. During this same time period, the Haiti Demographic and Health Survey indicated a stable under-five mortality death rate of 160 per 1,000.

... the CBIO approach allows [organizations who use it] to measure decreasing childhood mortality, provides pathways to community input and ownership, and ensures equity of health service delivery through pro-active contacts with hard-to-reach, high risk families.

The CBI O approach provides a unique platform from which to accurately monitor and evaluate program activities and outcomes, and to improve service impact.

One of the results of this strategy is the increased motivation that it provides to health workers, who actually measure and see the fruits of their labor, and to community members who are gratified when they see fewer community babies dying...

World Relief and Food for the Hungry recently conducted a review of mortality for children less than five years of age in their Mozambique census-based, care group projects over a four year period (2000 – 2004) and reported a 63 percent reduction, from 126 deaths per 1,000 live births to 47 deaths per 1,000. (Davis, personal communication, 2004)

In December 2003, we reported the results of a study of two CBIO sites in Bolivia compared to two geographically adjacent and comparable sites that lacked the intensive CBIO-based interventions. (Perry, Shanklin, and Schroeder, 2003) The CBIO areas received prenatal care, immunizations, growth monitoring, nutrition rehabilitation, extensive preventive health education (particularly related to the prevention and treatment of diarrhea, the early warning signs of childhood pneumonia, and the promotion of appropriate infant feeding), treatment of pneumonia and diarrhea, emergency assistance with complications arising during childbirth, and treatment of chronic and acute conditions for persons of all ages, including timely referral. The comparison areas received highly limited government-provided facility-based services only. At the end of the study period, we found a difference in the annual under-five mortality rates in these rural areas of 52.1 percent, which was statistically significant. The CBIO area rate was estimated to be 98.5 per 1,000 live births, while 205.5 deaths per 1,000 was reported in the comparison areas, for a difference of 107.0 per 1,000.

In a separate study that included three CBIO Bolivia sites for a longer period of time (1990-1997), this author found that under-five mortality rates dropped from 164 to 63 per 1,000 live births, or 62 percent, in these program areas over a five year period (Shanklin, 1998). Infant mortality dropped by 74 percent over three years in two program areas, but did not decrease in the third area. There was a clear dose-related effect; programs where prenatal care and facility-based deliveries were available and used experienced much greater reduction in infant mortality than programs where such services were not well utilized.

Other Health Indicators

Of course, there are many other important indicators of service coverage and impact, beyond the ‘gold standard’ of mortality analysis. These include process measures of services delivered (such as, number and type of contact per client for selected services, and total number of cases treated) as well as outcome measures (such as, changes in health behaviors over time, and total proportion of children under two with all of their immunizations). The CBIO approach provides a unique platform from which to *accurately* monitor and evaluate program activities and outcomes, and to improve service impact. One of the results of this strategy is the increased motivation that it provides to health workers, who actually measure and see the fruits of their labor, and to community members who are gratified when they see fewer community babies dying and more individuals receiving the basic PHC services they know they need.

The Haiti mortality reductions reported above were accompanied by improvements in service usage and health outcomes in both NGO (MEI and OBDC) target populations. Selected results included the following:

- The proportion of children weighed six times during the past twelve months increased dramatically. For OBDC, the baseline measure was 11 percent, and by 2003 it was 81 percent. The MEI baseline was 32 percent, and by EOP it was 92 percent.
- The proportion of children breast-fed within one hour after birth increased. The OBDC baseline measure (1998) was 52 percent; and at the end of the project (EOP; 2003) it was 70 percent. The MEI baseline was 57 percent, and the EOP measure was 73 percent.
- Oral rehydration therapy (ORT): 85 percent (MEI) and 91 percent (OBDC) of mothers fed more liquids during diarrhea and about 75 percent included ORT in their treatment.
- Over two-thirds of children were fully immunized before their first birthday. For MEI it rose to 67 percent, while for OBDC the rate increased to 70 percent. The vaccination ‘drop out rate’ also was reported to have declined.
- The proportion of women using a modern contraceptive method increased dramatically. The OBDC baseline measure was 12.5 percent, and rose to 57 percent in 2003. The MEI baseline was 15 percent, and increased to 50 percent by 2003.

Likewise, Food for the Hungry reported positive changes in their population related to mortality reductions. In particular, measurable improvements in mothers’ knowledge and practices in their Mozambique health program included these selected final results:

- 61 percent of infants were exclusively breastfed
- 69 percent of children with diarrhea were given the appropriate oral rehydration liquids
- 74 percent of children 12 – 23 months of age received all of their immunizations
- 83 percent of children received Vitamin A supplements within the past six months
- 72 percent of children receiving deworming medication within the past six months

For the Bolivia mortality journal article cited above, PHC services were well developed in the intervention areas by the time of the study. An assessment conducted at that time documented that:

- 95 percent of the children 12 – 23 months of age were enrolled in the health program
- 78 percent of these children were fully immunized

... Food for the Hungry reported positive changes in their population related to mortality reductions [after using the CBI O approach]. In particular, measurable improvements in mothers’ knowledge and practices in their Mozambique health program ...

During the study period [of CBI O-based interventions], by contrast, the comparison areas showed much lower rates of coverage and participation ...

- 80 percent of these children had received at least three growth monitoring sessions during the previous twelve months
- 60 percent of mothers were able to correctly prepare oral rehydration solution
- 42 percent of mothers with a child showing danger signs of pneumonia during the past two weeks reported seeking medical attention for their children.

During the study period, by contrast, the comparison areas showed much lower rates of coverage and participation:

- Only 31 percent of children 12 -23 months of age in the comparison areas had participated in any meaningful way with the local health service
- 8 percent of these children had completed all of their vaccinations.
- 8 percent of these children reported having received at least three growth monitoring sessions during the previous twelve months
- 36 percent of mothers in the comparison areas could properly prepare oral rehydration solution
- 21 percent of mothers with a child showing danger signs of pneumonia during the past two weeks reported seeking medical attention for their children.

These comparison study area rates were found to be comparable to rates reported in rural MOH service areas elsewhere in Bolivia.

CHAPTER THREE

Determine if CBIO is for You



The basic concepts of the CBIO methodology are deceptively simple, and many might even say, obvious. Yet the importance of each step of the process is not necessarily intuitive, especially for those who have been trained in the delivery of clinic-based health care. It is sometimes difficult to grasp the importance of some of the steps unless you become personally involved with it, or you have seen the results first hand. The main point of our work is that we start where people's health is right now, and begin from there. We do not assume that we know what is wrong, or what particular approaches will work, until after we have conducted local community assessments. This may require more programmatic flexibility than many health providers are usually comfortable offering! To do this kind of community-based health care work also requires that presence of several favorable factors, and the full commitment of multiple health partners. We discuss these issues below.

General Conditions

There are several general conditions which favor CBIO implementation, and several which make its use more difficult, if not impossible to occur. The favorable conditions that are necessary include:

- A socially cohesive community — that is, a community that is reasonably stable, has established mechanisms for social support and problem resolution, and has a commonly shared culture and language.
- A population that is relatively stable, with minimum and/or predictable migration patterns.
- The need for a more effective public PHC system, and leadership who are committed to improved service equity and effectiveness over a period of at least five years.

Conditions that make CBIO implementation more difficult to introduce are:

- A community which is unstable due to severe social, political or economic disruption.
- A population in movement, with families moving in, out and/or around the service area frequently (usually due to some form of disruption mentioned above, or due to prolonged annual migration).
- A functioning public PHC system with: little motivation to change its methods of operations; significant, ongoing turnover of local health personnel, making capacity building efforts ineffective; and/or too few

The main point of our work is that we start where people's health is right now, and begin from there. We do not assume that we know what is wrong, or what particular approaches will work, until after we have conducted local community assessments.

resources available to credibly offer even the most basic PHC services to the general population it is intended to serve.

Community Commitment

The CBIO process places more responsibility on community leaders and its members than a more passive, facility-based public health approach. Communities are asked to participate actively in community health assessments, census-taking, establishing health priorities, and overseeing health service functioning and outcomes. Their input is requested in what kinds, and how, health services are offered. Not all communities are able, or want, to participate in this kind of approach. As a general rule, it seems that rural communities are more stable, more homogeneous, and more open to this kind of active participatory approach. In contrast, low income, newly established urban areas tend to be less homogeneous, have substantial migratory patterns, and are less willing to take on ‘volunteer’ work which would conflict with time required for individual income generating activities. Having said this, there are several examples of well functioning CBIO programs in rapidly growing urban areas. While these programs are challenged by their destabilizing factors, they find that the CBIO approach works best because it provides them with much more information about their service population, and the means to track their progress.

Judy Gillens of FOCAS believes that the CBIO approach “*is an extremely good approach because it is so grassroots.*” By starting a project with a house-to-house census, the project planners and staff learn from the beginning what the people feel are their major health problems. “*It is very important,*” claims Gillens, “*to learn what the community members want from the beginning.*” FOCAS’s projects in Haiti have made a deliberate attempt to move beyond community involvement and into a deeper level of community participation. “*You are not just showing community members what you have found,*” she says, “*We’re trying to involve both staff and community members in all phases of program development. By using such participatory methods, community members can build [their own health care] skills themselves, and not just have a health agent intervene.*” This level of involvement is important for the eventual sustainability of program outcomes.

[CBI O] field staff will require ongoing, committed supervision and retraining in order to avoid the common pitfall of focusing on the processes of carrying out activities ... rather than ... resolving family health problems.

Health Agency Commitment

The CBIO approach requires two forms of institutional commitment that are essential for success. First, agency leadership and senior/middle management must truly appreciate the value for the CBIO approach through direct experience and/or observation, and they must commit the necessary resources to ensure effective implementation. Secondly, in addition to ‘inspired leadership’, an effective supportive supervision system must be established to ensure that new activities are undertaken correctly, and errors caught and corrected before bad habits set in. Field staff will require ongoing, committed supervision and retraining in order to avoid the common pitfall of focusing on the *processes* of carrying out activities (including data collection,

recording and reporting) rather than the impact; that is, resolving family health problems. *This is probably the single greatest threat to effective CBIO program implementation and impact.*

Potential for Scale Up and Sustainability

Scale Up

Scaling up health program activities flows logically from the CBIO implementation process. Most Curamericas' CBIO programs have expanded geographically over time, encompassing new service areas adjacent to existing ones. 'Pilot areas' were expanded to include neighboring areas until an MOH service area (such as a municipality) was covered. Additional municipalities may be added in similar fashion to reach scale at the MOH district level. This approach allows the program to build capacity by utilizing experienced staff to train and supervise new staff, and/or by transferring existing staff to the new areas, creating opportunities for the best local health volunteers to move into full-time, paid positions in the older locales.

The national decentralization of health services lends itself to CBIO scale up, particularly if the federal government promotes a census-based norm for local health program implementation. Such was the case in Guatemala during the mid-1990's, when health care was decentralized, a standardized, MOH sponsored health management information system (HMIS) was developed and implemented, and local community-based organizations (CBOs) were encouraged to organize and compete for federal funds to implement local programs. Unfortunately, corruption at the national level led to the disappearance of health program funds, resulting in chronic under funding of the initiative. This was followed by international donors withdrawing their funding support for the program, leading to the near collapse of the system. In Bolivia, Curamericas' NGO partner, CSRA found that the national decentralization of health services provided an important opportunity for local authorities to become sensitized to the issues of public health and human development. Once authorities' awareness was raised, their commitment to public health and development increased, and municipalities sought out CSRA to enter their municipalities and manage their health care systems.

Since the CBIO approach depends upon community participation, including the use of local health volunteers, local conditions in targeted communities should facilitate active community engagement. Communities in great flux, due to extreme socio-economic, political or climatic stress, are often too disrupted to provide the support needed for successful implementation. Populations with significant annual out-migration for long periods of time (for example, for seasonal agricultural work) complicate implementation because services are unavailable to families while they live out of the area. Further, these families may face disease exposure and illness patterns that are different than those found in the CBIO service areas. One example of this may again be found in Guatemala, where many rural families annually migrate for up to a half year from their mountain homes to the coastal plains to work on large sugar cane plantations. Different health conditions exist in these migration

The ‘top-down’ and ‘bottom-up’ approaches meet in a mutually respectful dialog that allows for modern health inputs, as well as for local values, sensibilities and resources.

... these authors believe that the CBIO methodology is one of the most effective and sustainable means for improving global health.

areas, increasing: exposure to malaria and other tropical diseases; malnutrition (families often do not have access to the same variety of foods in migrant camps that they have available in the mountains); more diarrheal disease (due to unsanitary conditions and lack of potable water); and, the proportion of men determined to be anemic (due to cuts and accidents experienced while working in the cane fields. Adult male anemia is infrequent in their home communities). These problems could be overcome if CBIO services were offered in both locales, but this is not practical in most developing country settings.

To summarize, the CBIO approach facilitates the scale up of program services. The ‘top-down’ and ‘bottom-up’ approaches meet in a mutually respectful dialog that allows for modern health inputs, as well as for local values, sensibilities and resources. Appropriate local variation is encouraged in public health programming, management, and support, and serves as a contrast to the more frequent, monolithic, one-size-fits-all approach of so many national health programs. Ultimately, *these authors believe that the CBIO methodology is one of the most effective and sustainable means for improving global health.*

Sustainability

Curamericas’ practical definition of health program sustainability is: *“The state in which the in-country NGO is able to maintain clearly defined, high quality health benefits indefinitely, based upon its own corporate capacity to generate and manage the necessary resources, in conjunction with community leadership and participation.”* Curamericas’ Bolivia NGO partner, CSRA, defines sustainability as *“the continuous provision of health benefits to a determined set of communities, indefinitely.”*

Five key elements underpin their definition:

- An adequate and secure flow of resources and supplies;
- Clearly defined, high demand products, with related measurable program goals and objectives;
- Appropriate technical capacity;
- Organizational structure (including leadership, accountability, clear lines of authority and decision-making, and stability); and
- A sense of ownership by NGO leaders, staff and communities.

Consistent with the above definitions, and for the practical purposes of this reference manual, we will discuss CBIO program sustainability from the standpoints of: community support; national (MOH) support; and sponsoring agency support.

Community Support

Several factors enhance the long-term sustainability of CBIO impacts in the communities where these services are located. First, mid-level health workers

frequently come from the communities where they work, and provide essential technical support and local development leadership in their areas. (This stands in contrast to facility-based health care, where health professionals typically come from outside the area and do not stay long enough to develop meaningful community relationships). Second, community preferences and priorities are incorporated into CBIO service planning, permitting the identification of high demand health services that are more likely to be financially supported locally. And, by creating a climate of trust between communities and the program, community members are more likely to seek out health services when they need them. Third, because the health program works directly with local leaders and institutions, material and financial support are more likely to be successfully negotiated as part of written agreements between the program and communities organizations (including municipal governments). Finally, active community outreach through home visits, group meetings and care groups directly results in the significant reduction of local causes of illness and death, contributing to the long-term impact of the program.

In contrast to these ‘enabling factors’, there may be several ‘barriers’ to CBIO sustainability, at least in the beginning. First, many donor agencies are oriented toward rapid improvements in quantitative goals and coverage, and not necessarily in the development of the slower community processes important for sustained long-term change. These funding agencies frequently balk at longer-term funding commitments because of their own internal administrative policies, and they may not be willing to finance such an approach.

Communities must be willing to invest resources and time into the CBIO approach. We sometimes find that local political leaders, MOH health staff in the area, and community members may not be willing to make the effort needed to initiate such a new and ‘risky’ change. Aggravating this point, some government, church and NGO interventions remain paternalistic in their operations. The attitude of ‘helping those who cannot help themselves’ may actually dis-empower communities, and is analogous to the resistance initially encountered by the international microfinance movement from opponents who stated that ‘the poor are too poor to save.’ We now know that the poor can indeed save money, and that poor communities can help themselves.

National (MOH) Support

National support for local health programming generally flows through a ministry of health (MOH), whether the support is: 1) purely financial, as through national health insurance schemes; 2) technical, such as the provision of policies, programs, protocols, and training; 3) material, like the provision of facilities, equipment, medicines, supplies, and printed materials; and 4) labor, including doctors, nurses, community health workers, and field supervisors. The MOH often is the first provider of direct public health services, although ministries that provide social security services, or military services also may have independently functioning health care systems. Working with a national ministry often is challenging, above all because ministry



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The CBI O methodology is a professionally rewarding process, once health providers have experienced its effectiveness and see real changes measured within their communities.

staff are unaccustomed to partnering, and all that a good partnership entails. As mentioned previously, MOH health personnel frequently come from outside the area they serve, and may not be trusted by the local population. Turnover (attrition) is often high among both MOH health service providers and their superiors, with the result that training or technical assistance provided may be lost within a few months or years. In addition, many MOH directed health staff do not hold themselves accountable to the communities where they serve, further alienating the communities from their assigned health providers.

Working with local or national NGOs provides a viable alternative to these structural problems. In the CBI O model, local health workers and volunteers are selected from the communities they serve, and are locally accountable for the quality of their work. The CBI O methodology is a professionally rewarding process, once health providers have experienced its effectiveness and see real changes measured within their communities. In this model, the MOH might best serve as the ‘guarantor’ of public health coverage and equity. The MOH could, and should play important and active roles in providing funding, materials, and training to health workers to strengthen their skills, as well as ensuring the quality, uniformity and range of services offered.

Sponsoring Agency Support

Six years ago, this author reported a study of CBI O program sustainability together with the Bolivian NGO partner of Curamericas, CSRA. (Shanklin and Robison, 1999) We uncovered impressive results that are worth reconsidering here. Major findings included:

- **Program sustainability was managed within the context of expanded service volume.** The program grew by over 750 percent in a ten year period. About 60 percent of expenses supported personnel, and 70 percent of personnel were field health staff, and the remaining 30 percent provided administrative and ancillary support.
- **Program sustainability was managed within the context of stable unit costs over time.** The average cost of providing PHC was calculated and found to be \$US 12.72 per beneficiary per year, and this rate remained remarkably constant over a ten year period, even as more health interventions were added. If inflationary factors were to be considered, the cost per client declined.
- **In-country NGO sustainability significantly improved during the ten year study period.** During the baseline year of the study, 1987, Curamericas had contributed 75 percent of total operating costs to CSRA, and the remaining 25 percent had come from CSRA and local program income. Ten year later, 1997, the situation had practically reversed. Curamericas was contributing 35 percent of NGO income while local income had risen to 21 percent and NGO contributions climbed to 44 percent. Further, CSRA could point to concrete progress in all five of its sustainability elements mentioned above.

By applying the practices and tools of the CBIO methodology, Curamericas, its NGO partners and other PVOs have been able to create effective and equitable health service programs that are potentially self-sustaining in the countries where they work.

Challenges and Pitfalls

Creating and regularly updating a census and maintaining charts of each family in the target area may be considered by some to be too labor intensive. Melanie Morrow at World Relief states that her organization “*found [the census] to be cumbersome; staff spent too much time on the roster and not enough time on their interventions.*” Eric Swedberg with Save the Children agrees: an organization must dedicate a significant amount of time, labor and resources to maintain a census-based system well. The question may be: Are the results worth the effort? Many say, “*Yes!*”

Given the intensity of effort required to implement the CBIO approach, *inspired leadership, appropriate and ongoing staff training, and regular supportive supervision are not only important, but essential elements of the program.* Of course, the same should be said of any high quality public PHC service, but the increased emphasis placed on regular monitoring and measurement through the CBIO approach mean that shortfalls and weaknesses are more readily apparent when data are analyzed. Identifying areas for improvement, in and of itself, is a very good thing for any health program to do. However, a supportive management environment is needed to ensure that negative results do not lead to a demoralized staff, or to further reduced program effectiveness through inaction.

By applying the practices and tools of the CBI O methodology, Curamericas, its NGO partners and other PVOs have been able to create effective and equitable health service programs that are potentially self-sustaining in the countries where they work.

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CHAPTER FOUR

Establish a Relationship between the Program and the Community

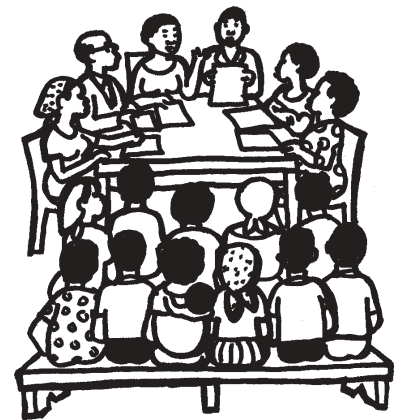


Developing a relationship between the health program and the potential target area population is normally realized through a series of meetings, discussions, and visits between health program representatives, and traditional and formal community leaders. These activities may take several months or even several years to complete. Mutual trust and confidence are prerequisites for progress, and this is best gained through patient, respectful dialog at the pace of the community leaders. Certainly, part of this process is to identify the most appropriate groups and individuals with whom to work. Those who first present themselves are not always the most appropriate or desirable individuals with whom to work! This step is finally established through the formal signing of a time-limited, renewable agreement between legal representatives of the health agency and the communities, and separately with the MOH if appropriate (and it usually is). Of course, firm commitments of funding, based upon realistic budgets are essential.

During the early, exploratory meetings, it is important to guard against raising false expectations, which may lead to long-term negative consequences between the program and communities. A guiding question that should remain in the back of the minds of health program representatives throughout this process is: Do these communities really want to partner with our program? A ongoing, candid self-appraisal of what the health program may actually be able to offer the communities, together with a clearly positive response to this question from key community representatives will be essential for further program development.

One means to develop good working relationships, especially if the health agency is external to the communities in which it intends to work, is to identify a high priority, community perceived, health-related need which can be addressed using existing community resources, and agree to undertake this work mutually until a measurable success is achieved. This activity should further develop the relationship of trust between health program staff and community members. A more structured process is presented below to demonstrate how effective community relations may be developed.

Mutual trust and confidence are prerequisites for progress, and this is best gained through patient, respectful dialog at the pace of the community leaders.



Identify and Make Contact with Key Individuals and Organizations

In this task, the health program staff attempt to identify the principal social ‘players’ in the community and their respective interests, in order to design presentations with the greatest chance of increasing community awareness, and to create a supportive environment for implementing the CBIO health program. The actions to take could include:

- Make a list of the local leaders, as well as the persons and organizations who should be considered as potential strategic allies (NGOs, leaders of neighborhood associations, community organizations, and volunteers)
- Identify the interests, opportunities and threats that may face each of the individuals and organizations on the list, answering the following questions:
 - *How will their interests (personal, professional, economic and political) affect (and be affected by) the implementation of the approach?*
 - *What resources are available to support the implementation of the approach?*
 - *What negative or positive effects will their interests have on the implementation of the approach?*

Identify the ‘spheres of action’ of these principal players, in order to recognize the environments (spheres of action) and the overlaps that exist among them. A tool used for this task is the *Audience and Actor Identification Chart*. For example:

- At the neighborhood or sector level (local leaders, volunteers, traditional medical practitioners, teachers, and the general population)
- At the municipal level (mayors, city councils, local health committees, local health directors, and NGOs)
- At the level of municipal districts (district health committees, the MOH, and social organizations)

Once you are satisfied with the list of relevant individuals, organizations, and their respective interests, you will want to make contact with them and create a positive first response. To succeed at this task, the following steps usually are necessary:

- Make a presentation of the national and/or municipal health program, or present an actual example of a similar CBIO program implemented by your agency elsewhere.
- Produce a political map of the area including the names and locations of the communities, neighborhoods, housing developments and blocks in the zone.
- Review and present current health statistics, sharing the most important health indicators (if this information is not available for the area, use statistics from the regional or national levels). Present the statistics graphically and as percentages to facilitate understanding by community representatives. The information in this presentation should consist of

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principal health indicators like mortality, birth coverage and vaccination coverage.

- Offer a graphic representation of the service network.
- Specifically, make a presentation of the proposed CBIO approach, which should include the following points:
 - *A map of geographical accessibility: show the distances of neighborhoods and communities to health services, routes of travel, and means of communication (such as, roads, telephones, and radio communications)*
 - *Graphics for levels of attention and human and physical resources: services offered by health establishments according to their levels of attention (primary, secondary and tertiary are common designations, defined by you for your audience), systems of referral and cross-referral, number and type of health personnel at each health service level, and equipment available at these health facilities*
- Make a presentation of the proposed CBIO approach, which should include the following points:
 - *A CBIO overview, including the five step implementation cycle*
 - *The census, baseline health assessment and the system for registration and monitoring of vital events*
 - *The rationale for and explanation of the system of home visits to families at highest risk of illness and death, and follow-up visits for detected and treated patients*
 - *Other systems for contacting clients, including group events and care groups*
 - *Social participation and the role of community human resources as principal factors in the success of the CBIO approach*

Develop Local Community Commitment to the CBIO Approach

The goal of the following activities is to successfully demonstrate the advantages offered by the CBIO approach for the improvement of family and community health, and to create a sense of individual and communal co-responsibility and commitment. To achieve this, you could take the following steps:

- Visit local leaders to set a place and date for introductory meeting(s). Request that invitations be sent to the most senior representatives of the concerned neighborhoods and communities. To speed this process and facilitate coordination, we recommend to:
 - *Hold conversations with senior formal and traditional local leaders with interests in health care to set a date for the meeting*

The goal ... is to successfully demonstrate the advantages offered by the CBIO approach for the improvement of family and community health, and to create a sense of individual and communal co-responsibility and commitment.

- *Suggest participant lists for the meeting(s) based on the previously identified key individuals and organizations*
- *Work together to write and deliver the invitation*
- **Make sure that all participants receive the invitation in a timely fashion. Contact all the participants to verify whether they have received the invitation, and emphasize the importance of their participation in the meeting.**
- **Make sure that all the materials needed for the presentation are on hand. Define organizational and logistic needs. Preparation should include:**
 - *Set the agenda for the meeting, defining who will be part of the team, what topic each member will facilitate, and the sequence of topics*
 - *Visit the planned location before the meeting to make sure all needed supplies are on hand, such as seats for all participants, and space for the material to be presented*
 - *If you plan to use audiovisual media, verify that the location has electricity and the necessary equipment to connect to it*
 - *Assign a person to be responsible for all organizational and logistical aspects of the meeting*

After the initial meeting(s) has been held and determined to be a success, hold increasingly more formal meetings at which key individuals and organizations begin to make mutual agreements and commitments.

- **After the initial meeting(s) has been held and determined to be a success, hold increasingly more formal meetings at which key individuals and organizations begin to make mutual agreements and commitments. The important elements of these meetings will include:**
 - *Prepare written agendas that includes all important points to be addressed*
 - *Ensure all key participants know one another*
 - *Present national health policies and frameworks, and the existing response capacity of the local health services network*
 - *Present the negative effects primary illnesses are causing in the target areas*
 - *Summarize the CBIO approach, and how the proposed work will be carried out*
 - *Reflect upon the responsibilities of local players in the improvement of family and community health; the contributions that these players may provide include: public financial support through municipal funds, access and support of the MOH, or other potential funding sources; knowledge regarding local values and culture; people who may be trained as health volunteers; technical, material and logistical assistance to health teams for CBIO implementation; feeding of volunteers during community activities; and making maps and numbering homes in communities under census; among others*
 - *Create partnering commitments for the implementation of the CBIO program*

- *Determine the neighborhoods or communities in which the CBIO method could be initiated, or pilot tested*

If a pilot test will be undertaken, it will be important to choose communities with the best possible conditions for accepting the approach. This will allow the team to gradually gain experience and develop greater skills, in order to later extend the intervention to the rest of the area. Be sure to:

- Prioritize the communities and neighborhoods with the largest number of at-risk populations (children under five years, pregnant women, etc.) and cases of illness and/or death caused by preventable, treatable or curable causes. The community or local health services can provide this information.
- Plan to recruit health volunteers from the communities and neighborhoods. Volunteers may be an important and determining factor in the success of the program.
- The greatest chances for success will occur in communities or neighborhoods with well-structured organizations, clear leadership and a history of successful community work.
- It also will be important to initiate the program in communities where you will have good geographic access to facilitate frequent contact, important to support and closely monitor CBIO pilot project.

Formalize Responsibilities through Written Agreements

A last step of the process of building local interest and commitment is to mutually agree upon a core set of leaders and institutions that will be responsible to create written time-limited, renewable agreement(s) between legal representatives of the health agency and the communities, and with the MOH. This activity should be time-limited itself, to build upon the enthusiasm generated during the meetings leading up to this moment. Set up a public forum for the official signing of community agreements, and invite the public to attend and actively participate in the event. This should be an event that is both important and joyous!

Develop a Cadre of Local Health Volunteers

After the agreements have been signed, begin immediately to set dates and locations for community planning meetings in those areas where the CBIO program initially will be implemented. One of the first activities of these planning meetings will be for the health program staff to work with community members and leaders to develop a health volunteer profile and to define the role of the health volunteers (that is, create a job description). However, prior to initiating this process, senior health staff already should have developed a clear plan for the number of volunteers they may need, how the volunteers will be trained and supported, and any incentives or non-financial support they plan to offer (see Chapter Nine for more on this subject).



Set up a public forum for the official signing of community agreements, and invite the public to attend and actively participate in the event. This should be an event that is both important and joyous!

The health volunteer profile should require, at least:

- Residence in the community or neighbourhood.
- The support and backing of the neighborhood or community.
- Demonstrated interest in volunteer work on the project.
- An ability to read and write reasonably well (only if their roles require these skills).
- A respectful attitude toward others, and a commitment to confidentiality.

There is much discussion and debate on who makes the best volunteers, or indeed, if there is such a thing as an effective volunteer. Our experience is that young adults demonstrate early enthusiasm and energy, but may carry little credibility with older adults, and may lose interest as educational and job opportunities arise. On the other hand, young adults often are literate and are quick to learn new material. Within Curamericas, we have had success with married individuals with children (a clearer commitment to the geographical area), who obviously have first hand experience in maternal and child health issues. Turnover of volunteers is always a concern, because each time a trained volunteer is lost, a new replacement is needed, and the training and support cycle begins anew. This places increased responsibility on paid staff who may already be at their threshold of maximum workload.

Generally, the job description of the local health volunteers should include the willingness and capacity to:

- Assist with mapping and numbering houses, and to help in collecting census data (in conjunction with health staff).
- Actively detect and refer people and families at immediate health risk
- Monitor and offer case management to selected clients.
- Provide health education intended to encourage self-care at the personal, family and community levels.
- Carry out these tasks using the tools and data recording forms appropriate to the CBIO approach being implemented.

... if financial or non-financial incentives are to be offered [to health volunteers], they must be judiciously considered before any formal announcements are made, because false expectations may create lasting friction between paid health staff and community volunteers, and may lead to increased volunteer dropout.

Health program staff should be clear that the responsibilities of health volunteers will be limited to an agreed upon number of hours per month (and no more), and that the work be purely voluntary (there will be no financial remuneration of their efforts). Alternatively, if financial or non-financial incentives are to be offered, they must be judiciously considered before any formal announcements are made, because false expectations may create lasting friction between paid health staff and volunteers, and may lead to increased volunteer dropout.

Once volunteer profiles (selection criteria) and job descriptions have been developed and approved, another planning meeting can be held to establish a process for announcing these positions and for selecting local volunteers. All potential candidates should be informed about the CBIO approach, including its major components, so that they will understand the scope of their responsibilities. Another goal of this

meeting will be to involve local community leaders in the process of creating the local health monitoring network. The later selection of the volunteers will be a task that should be organized and carried out by community members (and supported by senior health program staff) to ensure that the group of volunteers selected will have their full support and backing.

After volunteers have been selected and organized into a monitoring network, you may gather the volunteers and local authorities to review the following key steps:

- Describe the roles, functions and responsibilities of the volunteers and community leaders.
- Develop and sign a formal work agreement(s) among the individuals (volunteers, local leaders, and the health team) to signify the commitment of all parties to the CBIO program and its goals of equitable health care for all community members.
- Create a plan of action. This will include concrete activities like anticipated training, initiation of census taking, map making, house numeration, and beginning home visits in each targeted community.

Now, believe it or not, you are just ‘getting started’!

Develop and sign a formal work agreement(s) among the individuals (volunteers, local leaders, and the health team) to signify the commitment of all parties to the CBIO program and its goals of equitable health care for all community members.

CHAPTER FIVE

Getting Started



In order to successfully plan, conduct, monitor and evaluate CBIO program activities, there are three critical, early sets of activities that must be carried out. These are:

- Conducting a census
- Establishing a community baseline of health knowledge, practices and coverage
- Asking for community opinions and preferences regarding health services

The first set of activities is to conduct the census itself, which will include an exercise to map the target areas and number dwellings, as well as collect basic census data on all households located within the boundaries of the target area(s). Second, we will want to establish a community ‘baseline’ of community knowledge, practices and service coverage (conducted as a ‘KPC survey’), against which future health program progress will be compared. Finally, and importantly, we will ask for community opinions and preferences regarding health services, including the types of services desired, the availability of services, and other factors that may be of importance to community leaders and members. These three topics are addressed below, in this same order.

Conducting a Census

The CBIO approach is based upon enrolling a geographically defined population. A full census serves as a basis for program planning and for accurate data analysis, where the population is well known and documented. These data provide a convenient denominator for calculating both service coverage and mortality rates for different age/sex categories, and for many other measures of health care receipt and health status. *Most importantly, it honors each and every member in a community. The census rests upon the principle of equity: everyone counts, and everyone is counted.*

The census process should directly involve community members and health volunteers. Prior to the census, a series of meetings are needed to inform everyone of the purpose. A plan of action should be prepared which includes: when the census will be conducted, who will conduct the interviews (paid surveyors and/or community volunteers), the time of day when interviews will be conducted, and why it is necessary to map the area and number houses. The issue of informed consent should be discussed and resolved with local leaders prior to moving forward.

[A full census] ... honors each and every member in a community. The census rests upon the principle of equity: everyone counts, and everyone is counted.

The census may be conducted at the project level by community members and/or leaders, health workers, graduate students, or others who can read and write.

The tasks involved in census taking are:

- 1. Plan data gathering activities
- 2. Train census data collectors and supervisors
- 3. Map the community
- 4. Gather census data and open family folders
- 5. Tabulate results

Plan data gathering activities

The ‘family card’ used to record census information is a data collection instrument that contains information on each family member. It is usually completed prior to health project startup, and is updated each year through an annual “roll call.” The census may be conducted at the project level by community members and/or leaders, health workers, graduate students, or others who can read and write. This is carried out through a systematic house-to-house visiting schedule for family level interviews. In this process, census data are written directly onto the cards and the cards are used for a 3-5 year period.

Basic census information should include:

- A locator (a standardized address, which might need to be created)
- A family name (head of household)
- All household members: *their names and relationship to the head of household*
- Dates of birth: *month, day and year, using a standardized recording procedure* (the birth dates may not be known, so you may use an events calendar with certain historical events which they will remember, such as the national independence day, a famous drought, etc)
- Sex: male/female
- Occupations
- Educational attainment: *codes may be used for listing levels achieved, with dates of completion if possible*
- Immunization status: *for example, a “Y” for yes, and if over-age, then a “—” (slash) for each vaccine recommended by the MOH*

You may also choose to add other family level information to the card. For example:

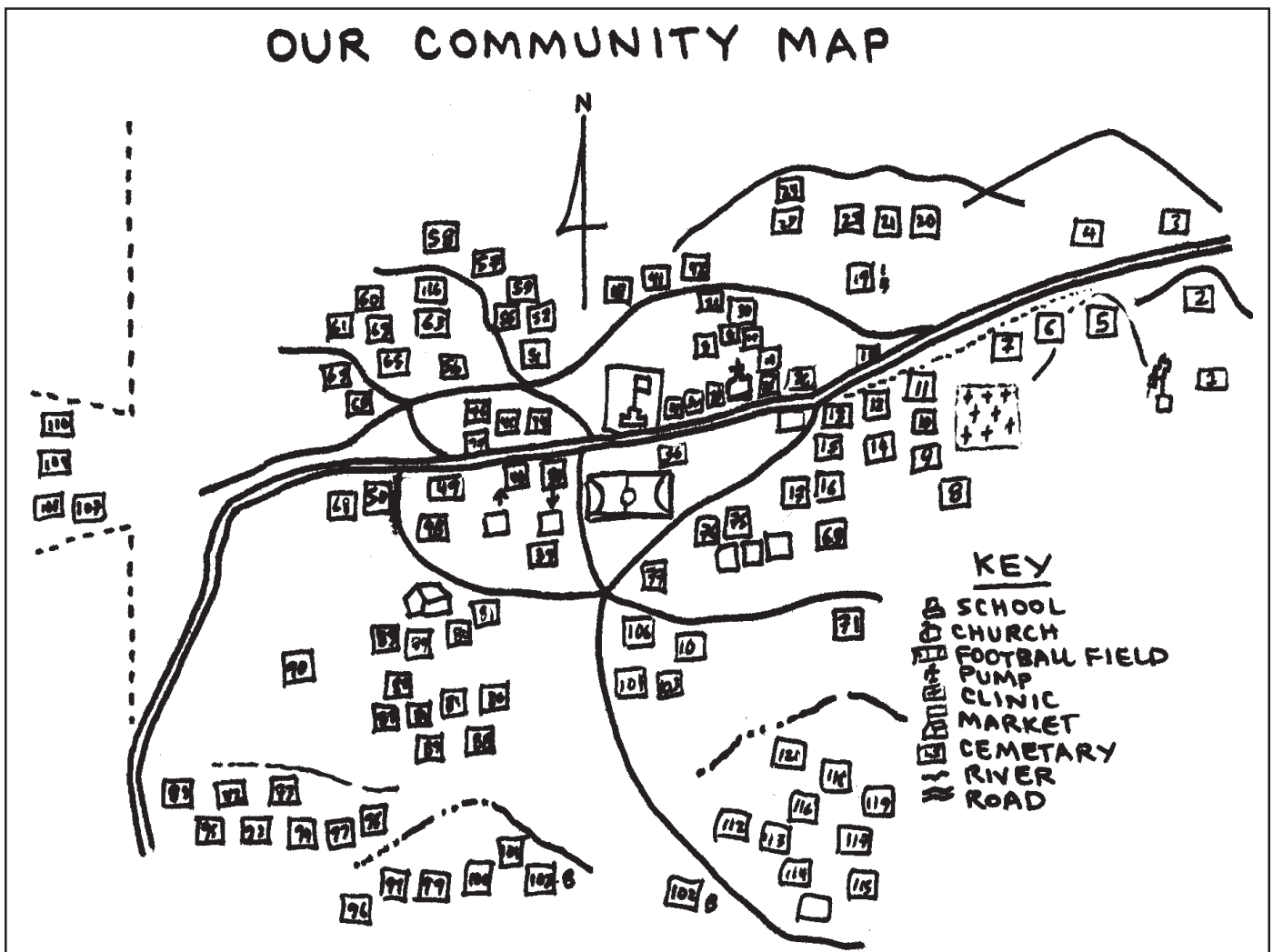
- Health knowledge: *a space for dates indicating that an oral test was given for ORT and/or ARI knowledge, or for basic hygiene knowledge and practices*
- Home environment: *data on water access/usage, the proper disposal of human waste, or the type of flooring and/or smoke ventilation*
- Socio-economic status: *criteria set by the community, such as number of livestock owned, the size and condition of the house, etc.*

In fact, all kinds of data may be collected on the family card, but care should be given to avoid collecting too much information to realistically fit. Further, you will

not want to record data that you know will rapidly become out-of-date, or will require multiple entries. For example, growth monitoring cards or malnutrition registers are a more useful means of collecting data on nutritional status, enrollment in nutrition education and/or nutrition rehabilitation activities. Finally, the family card needs to be carefully tailored for each project, translated and field-tested before being used.

In all likelihood, maps must be developed of the target service areas, and houses numbered. Maps are necessary in order to know where all houses are located, and the boundaries of the catchment area. House numbering is necessary prior to the census so that locators are systematic. A community (or catchment area) map will depict all the major structures, houses and landmarks (such as rivers and markets) that are part of the area. All the houses must have a systematic locator. If the houses are not numbered already, then in accordance and in collaboration with local leaders, the houses should be numbered following an agreed upon sequence. There are several challenges to be faced when numbering houses and each should be discussed prior to beginning. For example, points to discuss may include: boarded up structures, temporary structures for migrants or squatters, empty lots, multiple families in one dwelling, and future structures that may be built between the numbered houses.

A community map will depict all the major structures, houses and landmarks ... that are part of the area.



Train data collectors and supervisors

A first census training activity will be to define the roles, norms and responsibilities of team members. Census-taking teams should be composed of:

- **Coordinator** - *responsible for leading all activities related to map making, house numbering, and conducting the census (logistic, technical and organizational aspects)*
- **Team supervisor(s)** - *responsible for organizing and distributing interviewers and maintaining data quality*
- **Data collectors** - *responsible for making maps, numbering houses, visiting homes, recording data on family cards, and creating family health folders*
- **Logistics person** - *handles supply and distribution of office supplies, snacks and the like*

There are numerous other details to resolve:

- Setting dates for participant training and data gathering
- Setting a place and time for training participants (*It's important to set the dates in cooperation with local leaders, since they will have a sense of the availability of people living in the area. It will also be important to notify catchment area families about the census, with the approval of local authorities, so that families are aware of the activity and will be available in their homes during the dates of the census.*)
- Planning the logistics of training and data collection (*Simple planning tables might look like the following.*)

It [is] important to notify catchment area families about the census, with the approval of local authorities, so that families are aware of the activity and will be available in their homes during the dates of the census.

Mapping and Census Planning Table	
Number of maps to be made	
Number of houses to enumerate	
Number of person-days required to map and number	
Number of people to map and number	
Number of households to interview	
Number of minutes per census interview	
Number of interviewers	
Number of households per interviewer	
Number of interviews per day	
Number of days required	

Costs of Census	
Number of forms	
Cost per form	
Number of interviewers x payment per form or honorarium per volunteer	
Number of supervisors x payment per person	
Costs of local transportation and food	
Training allowance: ____ x participant	
Training materials:	
TOTAL COST	

Now you are ready to develop a training program, taking into account the following topics: the different roles and responsibilities of participants in census-taking; the basic theory of the CBIO approach, focused on the goals of the census; and, communication skills that will guarantee high quality interviews and accurate, legible and complete data. The training of data collectors should include proper etiquette and greetings, so that families are not intimidated or worried that their answers may have repercussions politically or economically (such as, used for taxation, or for the military draft), and that all responses are considered confidential and for health program planning only. Based on actual experience, the process to complete the mapping exercise (including numbering houses) and conducting the census will require approximately one month.

Map the community

Prior to conducting the census, develop a draft sketch(es) of the catchment area(s) based upon visual observation, community knowledge, and existing political maps. Form mapping teams, consisting at a minimum of a data collector and a person to help with house numbering. We also recommend assigning one supervisor for every two teams. Instruct your teams on the proper sequence of the household numbering system, and assign survey areas to each team. Hand out mapping and house numeration supplies according to the estimated number of homes in each team's area. (It's important to give each team a copy of the draft sketch with the boundaries of the catchment areas drawn in.) Houses may be numbered with paint and a brush, using a stencil for uniformity. We also have had excellent experience with locally produced painted metal plaques, which may be painted colorfully and be culturally appropriate. Always seek informed consent and permission to number the house.



Instruct your team on the proper sequence of the household numbering system, and assign survey areas to each team ... Houses may be numbered with paint and a brush, using a stencil for uniformity.

Gather census data and open family folders

Census data collection should begin immediately after census training. Participants may forget aspects of the training as time passes. Census taking should be on a full-time basis, in a reasonably short period of time, depending upon the size of the neighborhood or communities involved.

Each team will go from house to house, and will follow the house numbering sequence previously completed during the mapping exercise. Data collectors should interview heads of families whenever possible. If not, interview an older person who can provide reliable information. (If an appropriate person is not available, it will be necessary to determine the best time to return to complete the interview.) The sequence of interview activities is as follows:

- Identify and introduce the interviewer(s)
- Inform the family about the purpose of the census and its confidentiality
- Request documents that identify each family member: *for example identification cards, a family notebook, birth certificates, military service notebooks, infant health cards, and non-pregnant woman cards, among others*
- Begin the interview question process

While asking questions, fill out the form in the family file according to the instructions. Verify the accuracy of the data obtained in the interview against the documents you have requested (especially the dates of birth, ages, and names). Each family should have their own folder and a corresponding number, which reflects their location or house number. If more than one family lives in a home, each one should have a folder with the same number, but in addition, another identifier should be used (letter or number) to differentiate the two families. Generally, we define a family as those household members who share food from the same pot. Families may be extended (mother, father, children, grandparents, and cousins) or nuclear (just parents and children).

*Generally, we define a **family** as those household members who share food from the same pot. Families may be extended (mother, father, children, grandparents, and cousins) or nuclear (just parents and children).*

During the interview, it's important to investigate whether all the people in the home live there, or if some are only visiting, to avoid including people in the census that do not live in the area. The criteria for deciding whether a person is an inhabitant of a neighborhood should be established by having analyzed previously the movement of the general population in the area. If population movement is high, the period of time for residence should be shorter. If the movement of the population is low, the time for residence should be longer. For example: If during the census we find a person in a family who will be in the area for two months, and the average residence is two years, it won't be important to include this person in the census. Either way, the person will receive the same basic health actions as those counted in the census. Consistency is the most important aspect of the residency 'decision-rule'.

The supervisor-in-charge should review all forms by the end of the day, and any errors corrected immediately, and incomplete forms should be revised by revisiting

the house. This will allow the supervisor to monitor multiple data collection teams and to ensure complete and accurate data at the end of each work day.

Tabulate results

Immediately following the census, the census takers will hand-tabulate the forms. It should not take longer than a day or two. Easy-to-use tabulation forms can be designed, using the tick mark method (///). Large clear forms also aid in the process. A few hand held calculators always help. The goal of this task is to transform the collected data into useful information, so that health care providers and the community can make decisions directed at reducing the risk of illness for families in their areas. For this task, follow these steps:

Create 'tab' tables - For this step, review the data originally planned to be collected in the census. As a minimum, consolidate information regarding the number of inhabitants by age and sex at five year intervals for those over five, and in smaller intervals for those under five years of age. The following age groups work well:

- 0-30 days
- 1-11 months
- 12-23 months
- 24 - 35 months
- 36 -47 months
- 48 - 59 months
- 5 - 9 years
- 10 - 14 years
- 15 - 19 years
- 20 - 24 years
- 25 – 44 years (*or the national cutoff for women of reproductive age, if different*)
- 45 – 64 years
- 65 years and older
- Education level of the population by age and sex (*take into account these possible categories: illiterate, primary, secondary, and higher education*)
- Most frequent reported illnesses by age and sex groups
- Number of deaths by age group and cause

Form tabulation teams - It is recommend that all people involved in collecting the census data also conduct the tabulation, so that they can appreciate and value the final product of their efforts. The following process may be used:

- Form groups of two people, one to dictate and the other to record information with tick marks on the tabulation tables

The goal of [tabulating results of the census] is to transform the collected data into useful information, so that health care providers and the community can make decisions directed at reducing the risk of illness for families in their areas.

- Each group should tabulate the data of the sector or block in which they were responsible for gathering data
- Once completed, each group will present the results to the other teams

After the results for blocks or sectors are presented, the coordinator of the census will be responsible for consolidating the final results to obtain summary data about the catchment area, and s/he should develop a population chart for the whole area. Next, define a filing system for the family folders that will facilitate health staff work management. Among other considerations, it will be important to clearly identify the folders of families by risk criteria. (*Example: write 'TB' in red on the front of the family folder.*) Finally, the team should verify the agreement of the folders numbered during the census with the area maps. Make any corrections to the maps that are necessary for accurateness and completeness, and prepare final versions to be posted in a public area.

Establish a Community KPC Baseline

At this point, we have collected important information that describes the communities with which your health program will work, and may have collected some basic but limited information on health status. We now want to collect more in-depth information on the health status of the community, and identify the most important causes of sickness and death. This kind of information is generally best collected through a representative sample survey (not a census because of the time and resources that it would require), supplemented with information collected through 'focus group' discussions and interviews with key community representatives and stakeholders. Information through these latter processes will permit you to gather opinions and preferences from the people your program will serve, and will be important for community acceptance, service usage and support in the future.

Typically ... we find that certain age and sex categories ... are at greatest health risk. These groups usually include children under the age of five years ... , and women of childbearing age ...

Typically, in a developing country setting, we find that certain age and sex categories of individuals are at greatest health risk. These groups usually include children under the age of five years (and especially from birth through the first two years of life), and women of childbearing age (15 – 49 years of age, and especially young mothers carrying their first child, and older women who have delivered multiple children). This will be confirmed (or proven incorrect) during the analysis of data from the health survey and other data collection activities. Therefore, it will make sense that we focus our initial data collection efforts on these categories of health clients, but also acknowledge that as a PHC service, we will want to supplement this information with that of other age and sex categories.

The usual approach to collecting survey data within the context of the CBIO methodology is to conduct a Knowledge, Practices and Coverage (KPC) survey among a representative sample of mothers with a child between 12 and 23 months of age. This survey will be applied as a baseline measure, and later will be applied again to estimate progress in achieving multi-year program objectives. Fortunately,

to design and conduct this survey there are excellent reference materials already developed and available for your use.

Complete information on how to conduct a KPC survey may be found at the following web site: <http://www.coregroup.org>, or by contacting CORE directly (300 I Street, NE, Washington, DC 20002, USA). These materials will guide the entire process of conducting a KPC survey, from planning through analysis, report writing and presentation. Focus group discussions and interview techniques are likewise well documented, and published guidance is readily available. We have provided a listing in the References and Resources section of this manual for your convenience. What is important to emphasize is that these tools are flexible, and will be adaptable to the needs of your target areas and populations.

Of special note is that you will want to add a series of questions within the KPC survey data collection instrument to query mothers about any deaths that occurred within their family during the past twelve months. (This period of time is selected because responses beyond one year tend to become much less reliable, and periods shorter than one year generally do not provide enough cases for analysis.) Typically, the results of such a retrospective study will ‘under report’ the actual rate of deaths that have occurred. This is because of faulty memory, uncertainty about what constitutes a spontaneous abortion, still birth, or early neonatal death, and an unwillingness to share this kind of family information with a stranger. However, the resulting data will be of great use in establishing the *patterns* of death by age and sex categories, even if the numbers are not reliable for estimating actual mortality *rates*. These data may also be used to ‘cross-validate’ the mortality data collected during the census process. (This is discussed in greater length in Chapter Nine).

Ask for Community Opinions and Preferences

Community opinions and preferences may be collected as part of the KPC survey, or concurrently through focus group discussions and one-on-one interviews with community members. There is always a danger of overloading the KPC survey with too many questions, which will lead to lower quality responses from interviewees and lengthy analysis of data by your data collection team. Group discussions and interviews, while not statistically representative; often provide richer details that are useful in program planning. You will also be able to share the results of these data during community feedback sessions, when even more community input will be solicited and received.

Typical types of information that could be collected at this time regarding community opinions and preferences include the following partial list:

- What basic health services does your family require?
- Where and during what days and hours should these services be available to your family?
- What is your opinion of existing health services?

There is always a danger of overloading the KPC survey with too many questions, which will lead to lower quality responses from interviewees and lengthy analysis of data by your data collection team.

- How are you treated by health staff when you or a family member attends the closest health facility?
- Are there any reasons why you would not use the health services if a member of your family was sick?
- From whom do you seek health advice when someone in your family is sick?
- What are your recommendations for improving existing health services?

In the next chapter we will discuss how all of the information collected as part of the census taking and baseline health assessment are put together and used to plan and implement CBIO services. There, the initial community input provided during the baseline data collection activities will be reflected back to community members and more participation sought in health program planning and implementation.

CHAPTER SIX

Putting the Pieces Together



What Are the Most Frequent, Serious, Preventable or Treatable Diseases?

By the end of the activities described in the Chapters Four and Five, what is known?

- Locations of all households in the geographically defined service areas
- The total population (the ‘denominator’)
- The ages and gender of all family members
- The population disease burden (the most frequent illnesses)
- The most frequent causes of mortality, by age and sex
- Health service coverage statistics
- Community health preferences and priorities

With the collection and tabulation of both census and health data, your health team is prepared to identify those families who are at increased risk of illness and death. In turn, your health staff then will create the criteria by which local health workers will target their services and resources. We recommend that you hold a meeting to analyze the data found through the census, health survey, and other sources. At this meeting, the program manager and/or the field coordinator may facilitate the process of analysis with the participation of the interview teams, and health staff members. The analysis of the tabulated data will be directed at making an initial definition of the criteria for high risk to be considered by the health program and the community. Some possible high risk criteria may be:

- Families with children under five years of age (*Alternatively, based on the data, you may choose to more narrowly define that criterion to, say, families with children under two, or three years of age*)
- Families with an infant under one year
- Families in which there is a woman of child-bearing age
- Families in which a woman has died because of complications of pregnancy, birth or during the neonatal period, or families in which an infant death has occurred
- Families in geographic locations in which particular health risk(s) appears higher (for example, mountains versus plains)
- Single-headed households
- Families living under relatively poor socio-economic conditions (compared to the rest of households in the catchment area), such as: limited or no

... your health team is [now] prepared to identify those families who are at increased risk of illness and death ... and will create the criteria by which local health workers will target their services and resources.

access to potable water; no latrines or other sanitary facilities; poor housing conditions; limited livelihood opportunities; limited education attainment, and the like (*These categorizations will be based on the data available to your team*)

Many societies value their elderly, and will assign them a high risk status even though death events will be relatively rare (as a proportion of the total population), and prevention of death difficult to achieve. Others might be concerned about single parent families or families with known domestic violence and abuse, and/or alcoholism. These are all important considerations, and program staff will have to openly acknowledge and accept these local priorities, and balance them against the priorities of funding agencies, the MOH, and the evidence of the data you have just collected.

Once the high risk criteria have been determined, your team will need to estimate the number and percentage of families that have each of the defined criteria, and the relative priority of these criteria, or categories of risk. That is, which categories of high risk families will receive what health services and in what priority order? This may not be as difficult as it first seems. For example, in Bolivia, Curamericas and its NGO partner developed the following guidelines for family visitation:

- Six visits per year for any family with children under two years of age
- Three visits per year for families with children aged two to five years, or for families with a woman of childbearing age
- One visit per year for all households to update the census for use in planning and evaluation, and to share information about the health program with community members (including clinic services and prices)

The persons who will be in charge of implementing the health program, including those in charge of defined service areas (we often have termed these “service sectors” to designate an area under the responsibility of one individual) should be actively engaged in this task, and supported by senior health staff, as well as health volunteers. These persons should begin by selecting the family folders with one or more risk criteria, and marking the houses where these families live on maps, or by creating lists of high risk families, by risk criteria. The preparation of these materials and draft guidelines will provide an excellent basis upon which to conduct discussions with community members on health service priorities, activities and responsibilities.

Returning the collected information to communities is an important step to maintain and build a trusting relationship with the communities you serve.

Provide Baseline Study Feedback to Communities and Solicit Their Input

Returning the collected information to communities is an important step to maintain and build a trusting relationship with the communities you serve. It also is key in generating analysis, discussion and community interest in participating in the solutions of their shared health problems. This activity will include presenting the basic statistical information in a clear and uncomplicated manner, facilitating open dialog and further

interpretations, and using this information and analysis for community recommendations and decision-making.

Information sharing may be carried out with different groups in different settings. The ideal might be to hold such a meeting with the entire community, but you can also work with groups of local leaders, and with existing community groups (women's group, youth groups and the like). In fact, it may be impossible to gather the entire community together at one time, and unlikely that all members of the community would feel comfortable sharing their thoughts in such a setting. Health staff, health volunteers, and community leaders should actively participate in the process, under the supervision of the program manager and/or field coordinator.

Mutually establish a date, time and location for the meetings with neighborhood or community leaders, and make sure you have all the necessary resources (space, chairs, electricity, etc). As possible, take advantage of pre-existing opportunities when the community or community groups gathers. The meetings should be held as soon as the data are tabulated and the families at risk have been identified and mapped.

Prepare and define the educational techniques that will be used to present the information. (See Presentation of Quantitative Results at the end of this chapter.) Use visually graphic tools, so that the presentation will be enjoyable and easy to understand. Judiciously select and present the results generated during baseline tabulation and analysis, and the criteria for high risk families, such as:

- The number of inhabitants by age and sex
- The percentage of families with children under five years of age
- The percentage of families in which there is a woman of child-bearing age
- The principal illnesses that affect families in the community, and the age groups they affect with greatest frequency (*In the case of illnesses like diarrhea and acute respiratory infections, based on the results of the KPC survey, you will be able to report the proportion of children between 12-23 months of age who had the illness during the two weeks prior to the survey; these numbers may be surprisingly high to community members*)
- The major causes of death, and the age/sex categories most affected

At this meeting, you should discuss the actions that should be taken as a result of the identified health problems. Ask community members for their comments and suggestions, and if they agree with these recommended approaches. Ideally, the community will feel a sense of shared responsibility for the plans discussed and made during this meeting.

Use visually graphic tools [in presenting community information], so that the presentation will be enjoyable and easy to understand.



What Interventions are Needed and Affordable?

After you have completed this series of feedback meetings, your health program and the target communities are now ready to plan the first year of program activities. Another round of meetings should be held in each of these communities. This is a lot of work, but important to continue to build community engagement and commitment. We suggest that the appropriate local leaders and health volunteers also be present. The steps to follow for this task are:

- Gather the participants on a specific date.
- Have the data and results from the preceding steps at hand, including prevalent illnesses, causes of death, risk criteria, and the number of families at risk.
- Prepare a planning chart using the prevalent illnesses or health problems that have been identified. The following matrix is an example:

WHAT HEALTH PROBLEMS/ ILLNESSES AFFECT THE MOST FAMILIES?	The majority of deaths are caused by diarrhea
WHICH AGE GROUPS ARE MOST IMPACTED?	Children under two years of age
WHAT CAN WE DO TO SOLVE THESE PROBLEMS?	During bi-monthly home visits with families with a child under two years, we will share information on how to avoid diarrhea and what to do if it occurs
WHO IS IN CHARGE OF THAT ACTION?	Community health workers and health volunteers
WHEN WILL WE DO IT?	Every two months, beginning now
HOW WILL WE KNOW IF WE ARE TAKING THESE ACTIONS?	Review the home visit sheet in the family folder; check how many times they have been contacted about ORS, hand-washing, and hygiene

During these [planning] workshops, the program manager and/or the field coordinator should facilitate the activities, making sure that all those present have an opportunity to participate and speak.

During these workshops, the program manager and/or the field coordinator should facilitate the activities, making sure that all those present have an opportunity to participate and speak. Key results of each meeting should include:

- Establish annual goals and objectives
- Specify the target populations
- Plan major activities

- Identify the groups of individuals responsible for carrying out these major activities
- Agree upon general monitoring processes

In order for your program to create functional annual work plans (and later, quarterly, and monthly staff plans), much more work by your team will be needed after the completion of this round of meetings. However, the broad outline of the program will be in place, and the details of implementation and monitoring now must be elaborated.

You and your staff will review all program objectives and ensure that they adequately address the health problems identified and agreed upon with the community, given program and community resources. Further, these objectives should be consistently written, for example, as declarative sentences beginning with an action verb, and including measurable indicators and targets. The range of PHC interventions to be considered may seem daunting, but nevertheless should be reviewed and consciously agreed upon among your health team.

In all likelihood, there will be heavy emphasis on children under two years of age, and women of child-bearing age. Interventions to consider related to these age groups will include: community-based, integrated management of childhood illnesses (C-IMCI, or the separate interventions therein: diarrhea, pneumonia, malaria, measles and malnutrition); sexually transmitted diseases (STDs, including HIV/AIDS); maternal and reproductive health; family planning; pre and post natal care; birth and delivery; managing obstetrical emergencies; and personal and family hygiene, among others.

Beyond the narrowly defined maternal and child target populations, your team also will be considering services for the broader population, which may include a range of primary health care topics such as: accidents and medical emergencies; tuberculosis and other infectious diseases; dental care; and skin care, among others.

Finally, your staff will consider public health interventions which are not clinical or medical in nature, but rather are more on the order of community development, to address the underlying social and environmental causes of poor health. These could consist of: introducing appropriate technology like hand pumps for water access, point-of-source water purification, latrines, fuel efficient stoves that minimize exposure to indoor smoke, or low cost greenhouses; village banking; women's literacy groups; and animal husbandry and improved livestock management. These types of interventions may best be managed by other non-profit agencies or government agencies that would welcome the opportunity to coordinate their efforts with a health agency that measures its results and will facilitate access to these communities and their leaders.

Health interventions will incorporate appropriate preventive health education, and medical standards, protocols and practices established by the MOH for the country

... your staff will [need to] consider public health interventions which are not clinical or medical in nature, but rather are more on the order of community development, to address the underlying social and environmental causes of poor health.

where the program is being implemented. Ideally, there should be contact with all high risk families on a regular basis, say every two months, increasing the frequency of visits in cases of illness. Because of the significant human resources this will require, we suggest using the previously established risk criteria to plan the frequency of contacts. These contacts will be made through home visits, group meetings, perhaps through care groups, and through clinic/health post visits by clients. Families should always be encouraged to seek facility-based health care as much as possible, to reduce the labor costs associated with out-of-facility staff activities. Seeking immediate care is also important for some illnesses, such as pneumonia, when prompt identification of danger signs and appropriate treatment are often essential for survival.

The completed annual work plan will be the basis for all program activity, for monitoring and supervision, and for evaluation. We suggest that you establish a cycle of annual planning and evaluation. You also will find that quarterly and monthly staff plans will be desirable, which we will discuss in Chapter Nine. Finally, remember that planning of this sort does not mean that during the course of a year, changes and adjustments will not be made. Like budgets, these plans are ‘works in progress’, subject to change whenever agreed upon and necessary.

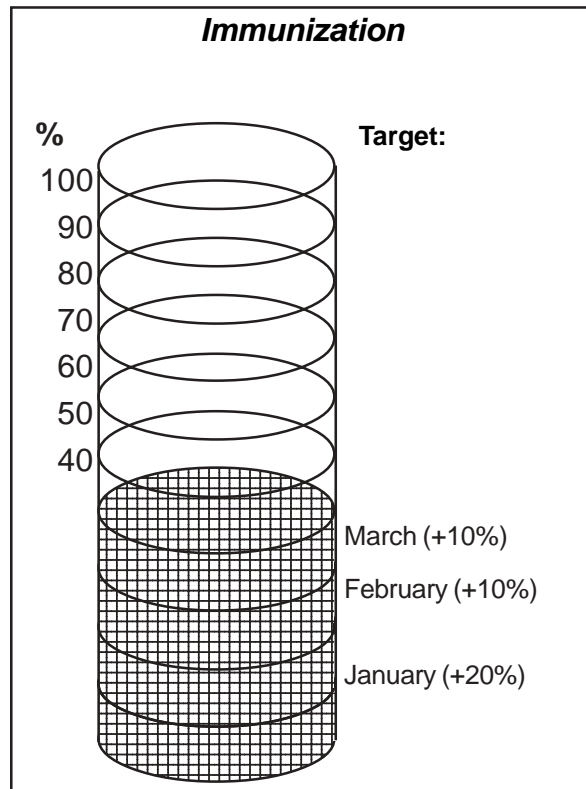
Presentation of Quantitative Results

In order to engage the community in decision-making, they will need the information provided to them in a clear and concise manner, and graphic displays of the data will be useful so that results are better understood. The information should not be presented as a speech, lecture, or class. Be prepared to mix visual presentation styles (say, the use of maps, bar charts, figure charts, etc.) throughout the meeting in order to avoid repetition and eventual loss of interest. Your tone of voice, gestures and movements should be natural and conversational, in order to stimulate interest and further discussion.

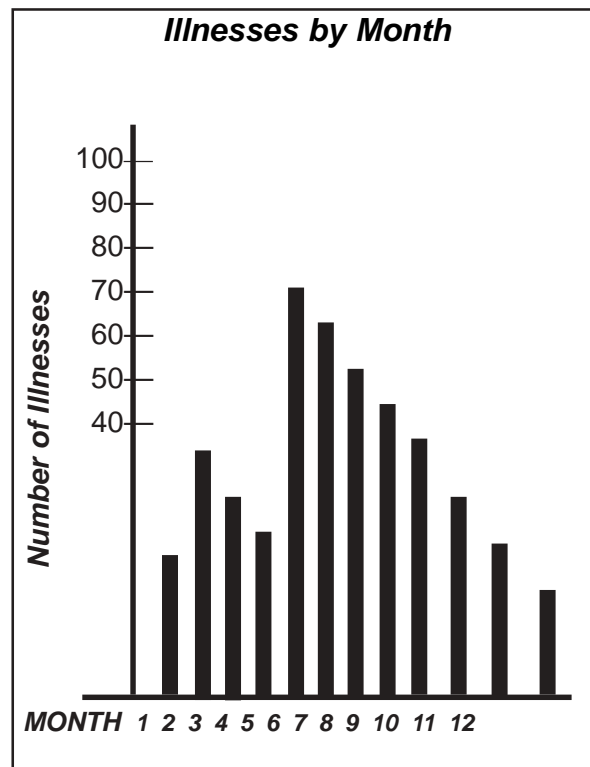
[When presenting information to the community] use flip charts, maps, drawings, and pictures of older people, boys and girls, and men and women with the types of illnesses (and causes of death) identified during the baseline assessment.

Use flip charts, maps, drawings, and pictures of older people, boys and girls, and men and women with the types of illnesses (and causes of death) identified during the baseline assessment. It’s important that percentages be expressed in an easy to understand way. For example, if 30 percent of the population of a given neighborhood is under two years of age, an easier way to express this would be “*of every ten people in the neighborhood, three are children under two years.*” Or, you could present percentages using common, everyday items to display the percentages, such as pita bread, a papaya or melon, a long stick with paints or colored tape, or by using stick figures. The data also could be compared to national statistics (visit <http://www.measuredhs.com/>).

The data information may be posted in advance of the meetings at community centers, local buildings, and traditional education centers so that the general public can review the results prior to the meeting. These same presentations may be maintained and updated in order to serve as community “scoreboards”, to track progress once the health program has been started. Such score boards might look like:



... data information [such as the example graphs shown here] may be posted in advance of the meetings at community centers, local buildings, and traditional education centers so that the general public can review the results prior to the meeting.



The facilitator always has to have the goal of ... generating useful community input in mind, in order to prevent the discussion from getting off track.

After presenting the preliminary results, it will be important to generate reflection and participation by meeting attendees. There are a few simple techniques that may help:

- Use open-ended questions to verify comprehension: Why? When? How?
- Invite discussion and analysis with provocative questions:
 - “*So, what does this information mean?*”
 - “*Has anyone had a similar problem?*”
 - “*Why is this happening?*”
- Encourage the participation of all present, not just one or two people (*One question that may facilitate this is: “What do the women (or other quiet group) think?; Another way to stimulate participation by a group or person is to highlight their contributions when they speak*)
- Avoid arguments (*Sometimes, two or more people may begin arguing among themselves. At this point we can say, “Let’s listen to the others”*)
- The facilitator always has to have the goal of the meeting (generating useful community input) in mind, in order to prevent the discussion from getting off track

CHAPTER SEVEN

Client Contacts



There are three fundamental means by which health agency staff and volunteers may reach out to their target populations, their individual clients. The first is through home visits, an approach that provides the greatest opportunity to understand client health needs and to address them appropriately, through preventive health education, direct service provision within the home, and referral to a local health facility. It is also the most labor intensive, and thus a more expensive approach. Group meetings are a second strategy to reach groups of individuals and families that CBIO implementing agencies have used. These meetings provide basic health services to greater numbers of people at the same time, and are a more cost-efficient approach. Those who are missed through group meetings (that is, who are expected but do not attend) are then contacted through home visits. Finally, CBIO agencies have begun using ‘care groups’, which is a volunteer, peer-based approach that promises to reach high risk target groups (such as women of childbearing age) in an effective and cost-efficient way. Each of these approaches is discussed below.

Home Visitation

The visiting community health worker (CHW) and health volunteer must fill a number of roles, or ‘wear many hats’ during a typical home visit. S/he may be an educator, a trainer, a motivator, a change agent, a resource referral person, a problem solver, a friend, and a source of moral support. While playing these different roles, s/he will follow a protocol your program has designed, such as:

- Review the health status of the family
- Reinforce behaviors that are protective and beneficial
- Provide education to the family on health behaviors to be adopted and practiced (such as, topics on ORT use, recognition of pneumonia danger signs, the importance of personal hygiene, accessing potable water, and sanitation)
- Record accurate, updated health and preventive education information
- Collect accurate, updated demographic information (census and vital events)
- Offer care, guidance and support in order to empower family members to take responsibility for their well-being

... home visitation [is] an approach that provides the greatest opportunity to understand client health needs and to address them appropriately, through preventive health education, direct service provision within the home, and referral to a local health facility.



Home visits should occur at least quarterly ... in order to effectively reinforce the preventive behavioral change messages.

Home visits should occur at least quarterly (every three months) in order to effectively reinforce the preventive behavioral change messages. Depending upon who is targeted, monthly visits might be necessary (for example, a child who is faltering in growth). We know that within three months many health changes could occur. A child may have three consecutive months of no weight gain. This would signal an action to quickly assist the family to combat the child's underlying nutritional problems, and increase the frequency of visits to monitor progress. A woman may become pregnant and will need to seek regular prenatal care, and develop a birth preparedness plan (especially if she plans to deliver at home). When the infant is born, s/he will need to be carefully monitored during the first month of life, and receive all of the recommended immunizations within the first year. There are many health issues that may require immediate attention within a family. As they say, the child's name is "Today!"

There are three types of home visits:

- Routine home visits
- Follow-up home visits for sick patients
- Home visits for special purposes, such as census updates, conducting a verbal autopsy, or conducting a study, like a KPC survey

Steps to follow during the home visits generally are as follows:

Plan home visits according to need and health risk using the family folders

- For any given work day, review each family folder to be used during a visit. Depending upon the staff person's monthly work schedule, these may be for any of the three types of visits listed above, or a combination of types. Verify that all parts of the folder are complete (family card, home visit sheets, infant health cards, birth control cards, non-pregnant woman cards, etc). If there are missing forms or data, make a note to update your records during the visit.
- Prepare any additional material to be used during the visit. The type of materials needed depends on who is making the visit and the reason for the visit. For example, if the visit will be done by a community volunteer, it may be important to prepare the family folders, educational primer, and pens. If the visit will be conducted by a staff member (CHW, nurse or doctor), s/he should bring family folders and a stock of basic medicines and supplies.

During the home visit

- Interview a responsible adult family member
- Find out whether any family member has a health problem or need such as, diarrhea, pneumonia, a pregnant woman, or the need for birth control (*If there is a problem, it should be addressed at that time if the visitor is a health care professional; If the visitor is a health volunteer,*

s/he should proceed with the education process unless the problem is an emergency, and make a referral for the person to go to the local health facility; After finishing the workday — or as soon as possible, according to the severity of the health problem, the volunteer should notify health personnel of the family's situation so they can take the necessary actions)

Group Meetings

A second approach to meeting with clients pro-actively ‘outside the walls of the clinic’ is to schedule regular meetings with groups of individuals to offer a set of health services and education sessions. Our experience is that these groups have been composed of women with children less than five (or two) years of age, but the actual composition of these groups could vary, depending upon the health needs of the community, and the priorities and resources of the health program. Further, these meetings may ‘piggyback’ on meetings that would have occurred anyway (such as mothers club meetings in Bolivia), or may be held as special health events (such as ‘rally posts’ in Haiti).

Group meetings are characterized by focusing on only selected services and actions that are doable within a relatively short time frame, and among a number of families at the same time. Typical services offered to women and their young children might include: growth monitoring; promotion of exclusive breastfeeding; complementary foods and weaning food preparations and demonstrations; immunizations; Vitamin A distribution; deworming; I-MCI consultations; preventive health education; symptomatic treatment of selected illnesses (such as pneumonia and diarrhea); and referrals.

In the example offered below (Haiti, FOCAS, 2002), we see that 75 percent of all child contacts for a health agent (CHW) in one month (180 contacts) could be made during three rally posts (RPs), and the remaining 25 percent of contacts (59) would take place during follow up home visits.

Revised Schedule of Contacts by Health Agents

Per Health Agent:
> 100 children 0-11m of age
> 100 children 12-23m of age
Total of 200 children 0-23m per Agent
(= 6,724 children / 34 agents)

Rally post throughput with two workers and eight minutes per child per worker ≈ eight children/hour.
Each child will receive about 15 minutes of attention.

... meetings [with clients outside the clinic] may ‘piggyback’ on meetings that would have occurred anyway (such as mothers club meetings ...), or may be held as special health events.

Rally Post Contacts (based on 90 percent of 200 children)

Estimated Number of Children	Age Group	RP Contacts/ Month	Total Number Contacts/Month
8	0 months	1	8
22	1 - 3 months	1	22
60	4 - 11 months	1	60
90	12 - 23 months	0.5	45
TOTAL 180	-	-	135

Visits to Children Who Are Ill (0-59m)

- Pneumonia, 0-59m: 2.5% x 500 = 13 visits
- Diarrhea with dehydration: 2.5% x 500 = 13 visits
- Malnutrition (M3, or faltering for 3m consecutively):
1% x 500 = 5 visits

Total illness visits / month: 31

Other Visits

- Visits to newborns, 8 newborns x 1 visit/month = 8 visits/month
- Visits to pregnant women (three times during pregnancy), 20 pregnant women x 0.33 visits/month = 7 visits/month
- Family Planning Counseling, 200 x 40% x 0.16 visits/month = 13 visits/month

Total other visits / month: 28

Total Estimated Rally Post Contacts per Agent per Month: 180

Total Estimated Home Visits per Agent per Month: 59

To do this, each Agent will conduct three RPs per month in their area with an average of 45 children attending each post. Another CHA will attend one of those RPs, and a Supervisor will attend the other two RPs. The tasks will be shared equally between the two workers to achieve a throughput of about eight children/hour. This will take three days out of the month to conduct one's own RP, and one additional day to attend one of the other Health Agents' posts. On the other days, they will conduct 59 home visits.

For a 21 workday month, a typical breakdown of an Agent's time may be:

- 2 days - announcing/planning (one's own) rally posts
- 4 days - rally posts
- 9 days - extended home visits (about 6-7 mothers / day)
- 2 days - in meetings
- 3 days - for training
- 1 day - for record keeping / reporting

Maximizing the attendance of group meetings is critical, because increasing numbers of absent, but planned attendees means more home visits later. This decreases the effectiveness of the meetings by increasing the total number of home-based contacts that will need to be made. Local culture, habits and practices may influence meeting attendance, and should be considered. For example, holding meetings on village market days may increase the number of mothers and children in the village, increasing your opportunity to offer group services.

Care Groups

Care groups are a relatively new strategy first reported by World Relief in its work in Mozambique during the 1990's, and initially was developed in response to the need to report quality program monitoring data among a volunteer population of low literacy (Welsh, 2000). World Relief soon realized that the positive results of this strategy far surpassed their initial expectations for improved program reporting.

The methodology is attractive for both project staff and community members for several reasons. Melanie Morrow at World Relief explains that each volunteer *“has a small enough caseload that they can actually do what you're asking them to do. It's feasible.”* Second, the group itself provides social support to its members. Women in a care group encourage each other, work together as a group and have fun. Tom Davis, who has worked with care groups at Food for the Hungry and with Curamericas, explains that as social support increases, fewer incentives are needed, drop-out decreases, less retraining is necessary, and more happens outside of meetings. Finally, explains Morrow, *“The care aspect of a care group is essential. People respond positively to care and concern.”* The volunteers see that the health staff members who train them genuinely care about them and their families. This encourages the volunteers – in turn – to care about their group of families that they visit. A care group consists of a group of eight to ten volunteer women each of whom represent, serve and educate a ‘block’ of ten to fifteen families in a local area. These blocks of families are established using census data to identify all women of reproductive age or with children less than five years of age, ensuring that no houses are left out of the project. For each of these blocks, one woman is selected to represent them in the care group. These care group volunteers then are trained by salaried health staff (called ‘animators’ in Mozambique) on both child survival interventions and key health messages. *“As volunteers are trained, they visit homes and talk to mothers on a one-to-one basis, sharing what they have learned and helping to answer the mother's questions about the subject the volunteer is presenting. They also discuss any births, deaths, pregnancies, or illnesses within the family.”* (Quotes taken from Welsh, 2000) Sometimes volunteers pair up to offer education, and may also use small flip charts that they carry with them.



The volunteers [in the care groups] see that the health staff members who train them genuinely care about them and their families. This encourages the volunteers – in turn – to care about their group of families that they visit.

As the concept developed, health program staff modified the process to select volunteers, who now are elected by their respective communities. *“This allows some younger women to be chosen because of their ability to read and write, which despite their youth, gave them prestige in the community. Overall, both older and younger were elected to service as volunteers.”*

Care groups meet for at least two hours twice per month for training, reporting progress of home visits, evaluating, and planning. Volunteers verbally report on the status of the women and children in their blocks and one woman (who must be literate) is selected as the group’s secretary and records what is said. This allows for a mix of literate and illiterate volunteers to work together and prepare written statistical reports. Care groups also discuss problems and possible solutions so that immediate actions may be taken. Group meetings consist of a mixture of learning and social activities. In the Mozambique example, care group members received one tangible reward per year, such as a scarf, skirt, or T-shirt, valued because they can be worn frequently and provides the volunteer with local recognition.

Animators introduce health interventions one at a time to care groups. *“For example, during malaria season discussions would turn to recognition and rapid treatment of malaria, and use of bed nets....As the interventions are phased in, volunteers are tested on their knowledge, allowing care groups to demonstrate their comprehension of one intervention before moving on to the next.”* Interventions have included diarrhea control, pneumonia control, malaria control, growth monitoring and nutrition education, breastfeeding, immunizations, maternal health and family planning, and HIV/AIDS.

Training the volunteers in the context of the bimonthly group meetings allows the animators to use group learning activities (such as songs, dance and drama) that would not be practical with one-on-one training.

Training the volunteers in the context of the bimonthly group meetings allows the animators to use group learning activities (such as songs, dance and drama) that would not be practical with one-on-one training. These kinds of non-formal learning techniques are viewed by World Relief as a sustainable means of empowering communities to improve family health. Information from the care groups passes to the animators who then generate summary written reports, as well as through monthly written reports to village health committees, and separately to health clinics. The health clinic information is included in their monthly reports, establishing a link between the care groups and the MOH reporting system.

Care groups have been applied in several CBIO settings with success. Importantly, turn over (that is, ‘loss through attrition’) of care group members is reported to be quite low when compared to individual volunteers used in different settings. This may be due to the additional peer and social support provided in a group setting that may be missing in settings where volunteers are expected to function independently. Further, their daily tasks are light (about one home visit per day), ‘doing less more often.’ *“Merging care groups with CBIO makes it more sustainable,”* says Mary DeCoster, Curamericas Program Specialist. In her experience with groups in the rural western highlands of

Guatemala, she finds that, “*care groups are fun, and communities become committed. Education and support offered through care groups can keep going after a project has ended.*”

An Alternative to a Full Census and Vital Events Registers

The authors of this manual believe whole heartedly in the CBIO methodology, and in its full application wherever possible. Its inherent strengths have been demonstrated time and again, and its superiority to a facility-based only health care program is evident. However, we also are sensitive to those health program administrators and managers who clearly state that *in particular situations*, an overt focus on equity, or on community-wide health care may not be appropriate. The classic example would be a health program that consciously prioritizes *only mothers* with children under five years, because they are so obviously in need, and because health resources are so constrained that community-based PHC is determined too costly to otherwise implement. We honestly believe that such a program itself is not particularly sustainable in the long term, because so many community members are excluded from needed health care services, and many of those individuals are, in fact, leaders and decision-makers within their communities. Exclusion and ‘vertical’ (intervention specific) health programming are ‘slippery slopes’ for health programs to take if they wish to be community supported and eventually self-sustaining.

Having stated the above, there are alternative approaches that we might suggest in such circumstances. *If community health equity and eventual self-sufficiency are not the primary public health concerns*, then highly targeted data collection and service delivery are possible, particularly within the ‘care group’ context. Such a strategy will permit program implementers to forego a full census and the maintenance of community vital events records. Instead, a system of locating all members of the target age and sex group will be developed. The care group approach offers such a systematic approach, wherein, for example, women of childbearing age with children under five years may be sought out by neighbors until they determine that all women within that age/sex group have been successfully identified. These homes would be mapped and numbered, a family roster of eligible participants developed, and a regular method of communication and targeted service delivery (home visits by care group members) established. Vital events would be monitored and reported in the same fashion, as described in Chapter Seven.

Care groups will function better in the context of the CBIO methodology, whenever resources and political will exist. However, the alternative, scaled down version described here should serve well for targeted groups in need.

If community health equity and eventual self-sufficiency are not the primary public health concerns, then highly targeted data collection and service delivery are possible, particularly within the ‘care group’ context.

Helpful Home Visit Tips

Here are some helpful tips on the home visit, that your field coordinator might find useful when reinforcing staff and volunteer actions in the field.

The eight “P’s” that describe the characteristics of home visits

- **1. PRO-ACTIVE** There is active community outreach, with health staff visiting the people rather than waiting for them to come to the health facility.
- **2. PRIORITIZED** There is a system of prioritized health needs targeted to high risk individuals. This one-on-one personal contact facilitates tailored health education to the individual and family, maximizing program impact.
- **3. PREVENTIVE** The home visit is designed to prevent illnesses rather than waiting until they occur.
- **4. POSITIVE REINFORCEMENT** Based on promoting healthy behaviors, a visiting health worker can strengthen and sustain a desired behavior by rewarding it when it is observed during the visit.
- **5. POPULATION-SPECIFIC** Health activities are based on the provision of primary health care services that are appropriate to target communities, with health messages and services specific to the needs of the program.
- **6. PROSPECTIVE** Data are collected at the present and into the future. It is not a retrospective data system in which only data on past events are collected. Data are compared to previous data points to observe trends, and to make program adjustments.
- **7. PERFORMANCE-BASED** The CBIO home visit approach is a dynamic process. The visiting health worker is responsible to a number of families, and supervisors monitor progress by accompanying the individual workers, and by reviewing the collected data.
- **8. PUBLIC** Population data are part of the public domain, and results are fed back to the community. It is community-wide data regarding public health and is shared and used in community decision-making.

*The eight “P’s”
of home visits:
Pro-active
Prioritized
Preventive
Positive
reinforcement
Population-specific
Prospective
Performance-based
Public*

The 'Basket of Give and Take'

During a home visit, the home visitor gives and takes from a big basket. Basically, the 'give' list of the basket includes education, services and support, which are provided to the family. The basket also contains data collection forms, which are filled in during the visit based on information that the family provides. Thus, the visiting health worker *gives*:

- **Health Education and Training** Home visitors train families in protective behaviors through personalized messages at the family level. Because the visitor observes first hand health behaviors within the home, health education messages are tailored to fit the family situation. Actual demonstrations and practicing of new health behaviors occur one-on-one (such as ORT mixing, or cooking nutritious meals).
- **Motivation** Simply providing health messages is not enough. Positive behavior change takes place over time, through repetition and reinforcement. In order to adopt a new behavior, people must be motivated to drop old behaviors. Even though a family does not succeed at first, they should not be reprimanded or denigrated. Home visitors provide attention, care, understanding and respect. The act of visiting a home gives value and respect to the family, showing they are important.

Clear demonstration of a new behavior's benefits will promote the adoption of the new practice. In most programs, volunteers and CHWs are expected to "practice what they preach." Since they are neighbors to those whom they visit, clients see these behaviors being lived. Visiting health agents also motivate family members to seek out and attend health services. They promote supportive community activities and encourage and supervise health volunteers.

- **Incentives** Sometimes home visitors will distribute tangible items, which help to promote new behaviors. ORT packets, malaria prophylactics, contraceptive pills or condoms, Road to Health cards, school registration forms, flyers for events, brochures with preventive messages, and wall calendars with visual health messages may all be used at one point or another to encourage healthy behaviors. These are optional incentives and given according to the targeted behaviors to be promoted. In some programs, CHWs are permitted to administer antibiotics for pneumonia, or anti-malarials. In Bolivia, Curamericas and its NGO partner offer immunizations and growth monitoring door-to-door. In Bangladesh, the Matlab program takes blood pressure, offers injectible contraceptives, and checks urine of pregnant women for glucose tolerance during home visits.

The act of visiting a home gives value and respect to the family, showing they are important.

Since [volunteers and CHWs] are neighbors to those whom they visit, clients see these [new] behaviors being lived.

The visiting health worker will be aware of the conditions of the house and intra-family dynamics through direct observation and active listening ... nothing substitutes for a home visit in this regard.

Visiting health agents also ‘take’ from their visits. For example, they *take*:

- **Service statistics** A home visitor will update rosters, family case files, and individual records, like immunization dates, growth weights on the Road to Health card, or make appropriate changes to basic information contained on the census form.
- **Vital events** All recent births, deaths, and migrations will be captured.
- **Family-home environment** The visiting health worker will be aware of the conditions of the house and intra-family dynamics through direct observation and active listening. “*A picture is worth a thousand words*” and there is nothing that substitutes for a home visit in this regard.
- **Health knowledge and practices of the family** The home visitor will assess the family’s understanding and practices of key health behaviors that the program promotes.

A Summary of the Visiting Health Agent’s ‘Give and Takes’

GIVES	TAKES
• Health education/training	• Service statistics
• Motivation	• Vital events
• Reinforcement/moral support	• Observes and notes family’s situation
• Referrals to health facilities	• Family knowledge and practices
• Follow-up to previous visits	
• Promotional incentives (ORT packets, antibiotics, etc)	

Communication Do's and Don'ts for the Home Visit

Here are some basic do's and don't to be considered by the visiting health worker and supervisor during a home visit.

DO'S

- Listen to the family, and respect their ideas and beliefs
- Put people first, and filling out rosters and reports second
- Be open, and ask open-ended questions
- Observe the home environment: be in tune with family dynamics
- Always encourage questions!
- Use simple language, without talking 'down' to the family
- Offer praise for good practices

DON'TS

- Focus on data and completing rosters at the expense of good communication
- Criticize family members and their behaviors
- Be judgmental and tell people that they are wrong or bad
- Treat people "lower" than you, or speak in a patronizing or condescending way
- Tell people that they must do 'this' or 'that'

DO ... put people first, and filling out rosters and reports second.

DO ... use simple language, without talking 'down' to the family

DON'T ... criticize family members and their behaviors

DON'T ... be judgmental and tell people that they are wrong or bad.

CHAPTER EIGHT

Data Management, Measurement and Analysis



Data Management

Efficient and effective data management and analysis are critical components of the CBIO methodology. We emphasize efficient and effective because data management may easily turn into a monster that consumes all in its path! Well, that’s not exactly true, but almost. Staff may become overly focused on data, rather than the people for whom they work. Staff also may become overwhelmed with their data management duties if not carefully planned.

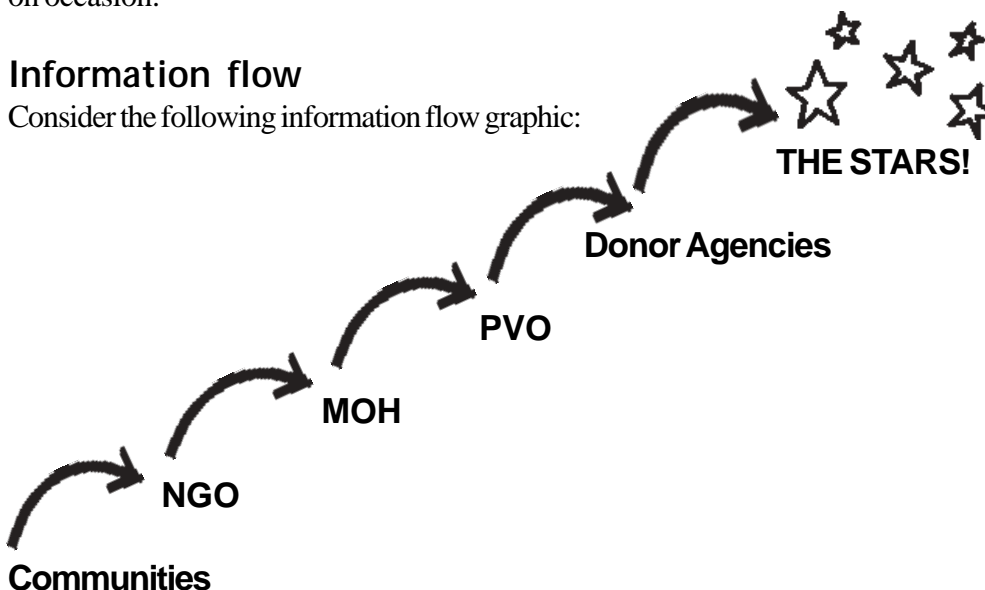
There are two ‘data temptations’ that must be controlled within the program. One common temptation is to collect ‘one more’ datum, one more piece of information, which of course turns into more and more data, until staff spend more time on data management than on health services. This defeats the entire purpose of data collection. Collect only the data that directly supports and informs the program and the communities. Secondly, over time many field staff may choose to focus more energy on the data than on the people these data represent. This is an understandable temptation, given the trials and tribulations of working with (often ill) human beings, compared to the relative comfort of working alone at a desk with data forms. Forms aren’t so complicated, and they don’t talk back! As a program manager, you will want to reinforce the point that direct health service delivery always comes first, even if that means program documentation must be postponed or even missed on occasion.

We emphasize efficient and effective [data management] because ... staff may become overly focused on data, rather than the people for whom they work.

As a program manager, you will want to reinforce the point that direct health service delivery always comes first, even if that means program documentation must be postponed or even missed on occasion.

Information flow

Consider the following information flow graphic:



The health information first belongs to the community, and should be shared with them regularly, the source and rightful owners of the data. Information is power — it is essential for building community engagement

... if an area experiences significant in and out migration, it will be necessary to update the data more frequently ... [but] if population movement does not vary much, then information may be updated less frequently ...

There are many levels of data demands and needs. The challenge to health program managers is to limit these demands to what is both reasonable and doable. Rather than focusing on feeding the data upward all the way to the stars, remember the critical feedback loop between the health program (NGO) and the communities the program serves. The health information *first* belongs to the community, and should be shared with them regularly, the source and rightful owners of the data. Information is power — it is essential for building community engagement, and it is critical to improve and refine the health program.

In this chapter we will discuss important elements of the CBIO data process, beginning with the ongoing management and updating of census forms, service registers, vital events, and verbal autopsies. This is followed by a discussion of key analysis tasks: sharing the information among staff, communities, and the larger health system; estimating service coverage levels; assessing mortality; and annual evaluation and planning.

Census forms

People are born, die and move in and out of the target service areas on a regular basis. Other socio-economic and health indicators also change. Thus, we conduct an annual update or “roll call” of the program’s census data to verify the information. This may be done annually, house to house, and also on a regular basis by updating information as changes occur and are recorded. Of course, some households will be visited more regularly than others because of their health risk status, at which time their family health folders (including the census card) will be updated. Other households will be visited only annually, because, for example, they do not contain young children under five years, or women of reproductive age.

The scale of community census changes occurring will determine the frequency for updating data. For example, if an area experiences significant in and out migration, it will be necessary to update the data more frequently. On the other hand, if population movement does not vary much, then information may be updated less frequently, say annually.

In order to consider the roll call complete, absolutely all homes and families (including families without high risk) should have received a visit in the three months preceding the update. A good way to begin this process is to consider the frequency of home visits by risk criteria. Sort out the family folders with regular contact in the past three months and tabulate these data. At the same time, schedule visits to families not at high risk and those that did not receive a contact during this period, and then continue the tabulation process with the additional data.

The steps to follow for this type of update are:

- Set a date for review and tabulation of family health folders. This process will take about eight hours of work for a population of around 12,000 inhabitants, with a team of perhaps eight to ten people. However, factors such as the criteria to be tabulated, the actual number of folders to be

reviewed, and the quality and completeness of data in the folders will affect the duration of this exercise.

- Gather all the family folders and post the area maps on the walls of a large room.
- Establish technical criteria for the tabulation, including the length of time since the last home visit to serve as a cutoff for sorting folders. We recommend that the cutoff be all home that were visited within the past three months. Lengthening this time period is not recommended.
- Be clear about the exact processes to use in order to tabulate the data. For example, to tabulate the age of children under five years, count the age in months, based on the date of birth. Usually, the figures to be tabulated will be the same ones used in the previous census update. That is, the number of inhabitants by age and sex, with an interval of five years for those over five, and in smaller intervals for those under five years of age.
- Form sorting and tabulation teams. Each team should be composed of two people, one person to review the data on the family card, and the other to tabulate the data. Two or three supervisors should be present to offer support and make sure standardized criteria are being applied consistently during tabulation. The teams will tabulate the census data at the same time.
- Assign communities to each tabulation team, taking into account the approximate number of people in each area.
- If a tabulation team finds a piece of information is missing, incomplete or unreadable, they should plan a visit to this family at the same time that they are visiting families who have not had a health contact within the past three months.
- Once preliminary tabulations have been completed for all families visited during the past three months, home visit lists should be developed for all families in each service sector in order to confirm and/or update the census information.

Now your staff is ready to conduct follow up visits to all remaining families, including those with missing information. Even though you are following the same steps as in the original census taking activity, the process will be faster. That is because your team will be visiting fewer dwellings, and during interviews it will only be necessary to confirm whether all family members are still present, add new members to the family card, and recalculate age and education data. It will not necessary to see identifying documents except in the case of a new family member.

New family folders will be opened and houses numbered only in cases of new families and homes. Remind your staff to carry their area maps with them and note new dwellings and families in the neighborhood. Also note all abandoned or boarded up houses, and ask neighbors about the residential status of the inhabitants.

Data gathering for a health program's census update should be done in a period no longer than a month. As a final staff exercise, tabulate the data collected during the

Be clear about the exact processes to use in order to tabulate the data. For example, to tabulate the age of children under five years, count the age in months, based on the date of birth.

... registers provide a means of systematically monitoring high risk clients, making health worker activities more efficient and effective.

follow up visits with the tabulations conducted earlier on all families visited during the past three months. Compare this census information with the information compiled during the previous year. Discuss any changes that may have occurred with your staff, and consider likely reasons for these changes. Later, you will share this information with the communities and post revised census data in a public location.

Finally, as a test to ensure your staff is collecting high quality data, you may wish to validate the census data through interviews among a sample of randomly selected families, and compare the results to the data tabulated from folders.

Registers

Registers are basically composed of lists of target individuals, to serve as guides for health workers to know on whom they should concentrate their efforts. These lists may be drawn directly from family health folders, or they may be based on data collected during contacts with the target population. They capture service information per individual, and are used to help monitor services, as well as desired changes in client knowledge, practices and health status. As such, the registers provide a means of systematically monitoring high risk clients, making health worker activities more efficient and effective.

Examples of commonly maintained registers and their contents for specific census sub-groups might include the following:

■ Under-five Children

- 1) Name, address, sex, date of birth
- 2) Immunizations (dates by vaccine)
- 3) Vitamin A and deworming receipt
- 4) Weight/date: nutritional status

■ Women of Reproductive Age, and/or Pregnant Women (*see below*)

- 1) Name, address, sex, date of birth
- 2) Pregnancy status and prenatal service receipt, by type and date
- 3) Family planning services received, by type and date
- 4) Nutritional status

Women of Reproductive Age (15 – 49 years) Pregnancy or Family Planning													
ADDRESS	First and Last	Birth and	Mothers trained in:					Use of a modern family					
			ANC	NUTRITION	IMMUNIZATION	INFANT CARE	BIRTH PREPAR-EDNESS	SPERMICIDE	CONDOMS	DEPO	NATURAL	PILLS	

▪ **Families with Limited Household Resources**

- 1) Name of head of household and address
- 2) Status of water source, sanitation facilities, and/or conditions of dwelling
- 3) Changes in knowledge and practices related to personal and family hygiene, point-of-use water purification, and potable water storage and use

Registers may also be drawn up based upon specific health interventions.

Registers may also be drawn up based upon specific health interventions. For example, a register could be developed in order to know who needs to receive particular services, such growth monitoring, or nutrition rehabilitation.

Growth Monitoring and Promotion - <i>Children 0-35 Months</i>																						
No Card	Locator	Last name and First name	Birth date	Sex	By month (1= Jan, 2= Feb, etc.) Monthly weight in kilograms and nutritional status by category																	
					1	2	3	4	5	6	7	8	9	10	11	12						

Nutrition Intervention - <i>Rehabilitation</i>									
Name	Locator	Age	Birth Mo/Yr	Date	Weight	Recommended Actions	Nutrition Education	Follow Up & Status	(Repeat last five columns)

Warning! The above examples are not exhaustive.

You and your team will develop your registers based upon the exact data needed to track and support targeted clients. We can offer several general recommendations regarding the use of registers:

- Multi-year registers are better than one year registers
- Keep enough additional pages to add newborns, in-migrants, and children who come of age
- Use hard-covered notebooks since the registers often will be hand carried for use during contacts

The goal of vital events monitoring is to track absolutely all births and deaths ... by identifying newborns early, your program may take preventive actions designed to further lower neonatal and infant death.

- Registers also may be computerized so that lists can be printed out. For example, in the field sites of the Haitian Health Foundation these lists are generated by computer, and are updated continually. The computerized lists are printed out every couple of months to update the information that the health agents will use during home visits or during rally posts.

Vital events

The goal of vital events monitoring is to track absolutely all births and deaths that occur in the targeted catchment area of your CBIO health program. The results of monitoring will help your program measure the effectiveness of its interventions. Secondly, by identifying newborns early, your program may take preventive actions designed to further lower neonatal and infant death.

Vital events and mortality monitoring involves two steps during client contact, and one analysis step. The steps are:

- 1. Detect and register all births and deaths
- 2. Conducting verbal autopsies of all deaths under five years of age; and maternal deaths during pregnancy or within 30 days of delivery, within one week to one month after the deaths occur, depending upon local customs and practices (or establish and use criteria that are more appropriate to your program service areas, based on previous mortality results)
- 3. Conduct a mortality analysis workshop every three, six or twelve months (depending upon the number of deaths that occur)

Detection and registration of births and deaths

Two sets of records are maintained on births and deaths: a local notebook maintained within each health sector by the CHW or community member in charge, and centralized birth and death registers maintained by a health staff person assigned this responsibility. As part of routine home visits, health workers will investigate whether a birth or death has occurred within the family since the last contact. This detection system should rely on community resources, particularly health volunteers, since community members are in the best position to informally learn of births and deaths, or to encounter them during the course of their health activities. However the information is learned, it should be conveyed to the person in charge of maintaining the local vital events notebook as soon as reasonably possible. If this information is encountered during a home visit, vital events data should be updated directly onto the family card, with the name and birth date of the newborn and other information included on the form. In the case of a death, register the date of death on the family card.

The vital events notebook will be used to record all local birth and death information. Each service sector will have its own notebook, and it will be maintained by a single individual, usually the CHW in charge of that sector. Alternatively, the notebook may be maintained by a responsible community member who has been assigned this task. The following birth information should always be included in the notebook:

Births

- Name of community or neighborhood
- House number
- Name of newborn
- Names of parents
- Age of mother
- Date of birth
- Where the birth occurred (health facility, home, etc)
- Who attended the birth (health worker, traditional birth attendant, or family member)
- Birth weight (or the first weight taken after birth, specifying the date)
- Person responsible for detection

All live births should be registered, including cases in which the baby died during, or immediately after birth. (A newborn who moved, cried or breathed is considered a live birth.) This is an important point, since accurate information is essential to assess the impact of your work on mortality. If the data are not current or are systematically flawed, these errors will distort the reported impact of your health program.

Data on local deaths is collected in similar fashion.

Deaths

- Community or neighborhood of residence
- House number
- Name of deceased person
- Name of parents or head of family in cases of child death
- Date of birth
- Age at death
- Cause of death
- Eligibility for verbal autopsy, and later the date when it was conducted
- Person responsible for detection

We recommend that all stillbirths also be registered (a product of conception that is recognizable as a fetus). It is important to gather this information as soon as the event is detected, or during the home visit. When registering deaths of children less than one year old, ensure that the birth of the child was registered as well. Once a death is detected and registered in the notebook, immediately inform the local CHW or program supervisor if it is eligible for a verbal autopsy. Registration of vital events into notebooks should be done as close to the day of the event as possible to avoid forgetting or losing information. If a birth or death is detected more than a month after it has occurred, it should still be registered in the vital events notebooks.

Monthly, a designated health program supervisor will compile the vital events data from the entire service area into the central birth and death registers. Every three

All live births should be registered, including cases in which the baby died during, or immediately after birth ... This is an important point, since accurate information is essential to assess the impact of your work on mortality.

months, this supervisor should review all vital events notebooks, making sure the data are complete, legible, and without duplication. At that time, all events should be transferred to the central birth and death registries, if they have not been already.

Verbal autopsies

In addition to registering deaths in the family health folder and in a centralized death register, it may be important to gather additional information about the events that led up to a death. Such deaths will be those that occurred within prioritized risk groups previously identified by your health program, such as children under-five years of age, and women of reproductive age who died during pregnancy or within thirty days of delivery. The selection of verbal autopsy eligibility criteria used in your health program will be based upon previous mortality assessment results.

The verbal autopsy form is the data collection instrument used to record disease symptoms, treatments, and the circumstances surrounding the death. Using this tool, project health staff will be able to establish and confirm the biological cause of death, and also the obstacles that may have hindered access to effective treatment (that is, the blockage in ‘the road to survival’). By understanding the contributors of death, your staff may be able to identify and formulate interventions to properly prevent future blockages from occurring.

The *verbal autopsy form* contains two sections. The first section is a questionnaire asked of the family member closest to the person during his/her illness and death. This section includes general information, personal information of the deceased, family background, previous health history, unique circumstances of the death, and information collected from other relevant documents, including the clinical history of the deceased (health cards, family folders, and other records). The second section includes social-economic data, information and comments provided during the relevant mortality analysis workshop, and information from the responsible interviewer and supervisor.

Interview a family member who was with the person who died during the illness and death ... between one week and one month after the event. We do not generally recommend conducting the interview any earlier out of respect for the family's mourning.

Typically, the steps of the verbal autopsy include:

- **Prepare materials and arrange interviews.** This involves counting the number of eligible deaths and preparing the number of forms required for each group, scheduling the visits, and identifying the exact, current homes of the families.
- **Visit the family.** Interview a family member who was with the person who died during the illness and death. The interview should ideally be conducted between one week and one month after the event. We do not generally recommend conducting the interview any earlier out of respect for the family's mourning. Conducting the interview more than thirty days after the event will increase the chances that details will be forgotten or omitted.
- **In cases of child death, the interview should be conducted with the mother, if possible.** It is important that the interviewer be gentle and

skilled with the mother in order to encourage her to talk about the subject. The interviewer should take the time necessary to build the trust of the mother and her family, and during the process of the interview the interviewer should not offer any judgments or opinions. We recommend using a trained person who does not have ongoing contact with the family, in order to minimize possible reporting bias on the part of the family.

- **Explain the purpose of the interview, and complete the verbal autopsy form.** Gather information and, at the same time, fill out the verbal autopsy form. Ask to see documentation of the health history in the home, and copy relevant data to the form. Review the form and make sure it is filled out fully and correctly. Make any necessary changes prior to leaving the home.
- **Review and verify health information at the health facility.** After the interview, the interviewer should review the family health folder of the person who died and confirm the information on the autopsy form. Later, a supervisor or physician will review the form and determine the probable biological cause of death. Place the completed form in the verbal autopsy folder for the health program. This information will be used during the next mortality analysis workshop.

Share the information

Below, we consider different ‘forums,’ or types of meetings, to not only share information, but also to review and analyze the information to make it *locally useful*. Remember, using the information to improve community impacts is the whole point. The following suggested meetings are to serve as examples only. Your program may have unique data analysis needs that will require a different combination of meetings, frequency, and participants.

Monthly health worker meetings

Community health workers and their supervisors should meet together monthly to review the activities of the previous thirty days, and to discuss issues around the next month’s planned activities. Common agenda items may include:

- Summarize the previous month’s activities of the group
- Self-assess their own performance, based on community health statistics and the completion of their monthly objectives
- Review the detection and referral of complicated cases, and any lessons learned
- Discuss any under-five, infant, neonatal and maternal deaths
- Problem-solve on common challenges encountered during client contacts, such as during home visits, group meetings, care groups or in health facilities
- Discuss any issues related to the organization of work

... share information ... to make it locally useful. Remember, using the information to improve community impacts is the whole point.

Monthly meetings should be held between health volunteers, their supervisors, and key health staff ...

- Confirm next month's education activities
- Discuss any planned and upcoming training, field studies or other special events
- Finalize the next monthly work schedules

Monthly health volunteer meetings

Monthly meetings should be held between health volunteers, their supervisors, and key health staff of the local health facility (as relevant). Health volunteer activities will vary widely across programs, based on how volunteers function within their particular settings. For example, health volunteers who assist with routine home visits and group meetings in one program setting will have different duties compared to volunteers in a care group setting.

Nevertheless, common agenda themes will often include the following:

- Report on client services provided
- Report on educational sessions conducted
- Review vital events: identified births, deaths, and migration
- Receive supervisor feedback, and continuing education support
- Complete and submit any monthly reports due to their supervisors
- Problem-solve on common challenges encountered during client contacts, such as during home visits, group meetings, care groups or in health facilities
- Discuss the organization of work
- Confirm next month's education activities
- Discuss any planned and upcoming training, field studies or other special events
- Finalize their next monthly work schedules

Quarterly supervisor meetings

Supervisors and/or health facility staff often report CHW and health volunteer activities through their reporting system to their in-country headquarters and/or to the MOH on a monthly basis. Quarterly meetings of field supervisors and facility staff are desirable to review the content of these reports and to identify issues or problems encountered. This is also an excellent opportunity to review all field referrals for facility-based care, and to determine if referrals are functioning well, or if any actions are needed to improve referral compliance, or to better document cross-referrals. Facility-based care concerns also may be considered during these meetings, and resolutions sought. If these issues persist, then follow up by a regional or national clinical supervisor can be requested.

Quarterly community meetings

After the quarterly supervisor meeting, we recommend that communities receive feedback on health program activities; problems encountered, successes achieved, and invite community feedback on any issues raised. This is also an excellent

After the quarterly supervisor meeting, we recommend that communities receive feedback on health program activities; problems encountered, successes achieved, and invite community feedback on any issues raised.

opportunity to identify issues that may benefit from community inputs. For example, if emergency evacuation of critically ill patients is a problem, invite community members to suggest appropriate local solutions to this problem. This meeting should be attended by community leaders and interested members, local MOH staff, and health program personnel, including health volunteers. As with other community meetings, the shared information should be communicated clearly, using simple visual aids when appropriate. During these community meetings, all participants should be encouraged to actively participate in problem-analysis, discussions and to propose feasible solutions. Below, we offer an example of a written summary of a typical quarterly community meeting.

Decisions Taken by Communities During Quarterly Community Meetings			
Communi- ty	Problem Addressed	Community Analysis	Decision
A	During August-November, CHW attrition increased, and 10% of children weighed showed inadequate weight gain.	The economic situation in the area is promoting external migration. In the community there is only one CHW in place. Some members of local health committees have also emigrated.	<ul style="list-style-type: none"> •Continue weight monitoring of children •One more CHW will be assigned •New community members will be elected for the health committees
B	During August-November, 7% of all children have had inadequate growth during two consecutive periods.	Children in these communities experienced an increased in diarrheal and ARI diseases.	<ul style="list-style-type: none"> •Encourage drinking boiled or chemically purified water in the homes •Refer children with danger signs to health facility •Train 5 more community volunteers on nutrition •Refer children with nutritional deficits to nutritional center
C	Lack of transportation access for obstetric emergencies in the three communities	There are no community plans for evacuation during emergencies.	<ul style="list-style-type: none"> •Improve surveillance of pregnant women •Re-educate TBAs on danger signs during pregnancy, delivery and postpartum •TBAs will identify women with danger signs, and the transportation committee will provide the means to evacuate those cases

During these community meetings, all participants should be encouraged to actively participate in problem-analysis, discussions and to propose feasible solutions.

Data Measurement

Estimate coverage

Pause and remind yourself how the CBIO health program attempts to ‘cover’ the target population. First, community health workers and health volunteers offer health education and selected services in the community. These activities occur during routine home visits, during community group meetings, and/or in the context of care group activities. Families will also seek health care at local facilities. Family health statistics and selected outcomes are documented in family health folders, registers, and on other data collection forms. And, census data also are collected and summarized that describe the basic characteristics of everyone in the service area. The census data will be important to calculate coverage.

For example, what if we want to determine immunization coverage? We have data that tell us:

The number of children between 12 – 23 months
who have been fully immunized = A
(*This information may be found on child immunization cards
located in the family health folders*)

The total number of the children between 12 – 23 months = B
(*This information comes from the census summary*)

A divided by B = coverage.

Numerator divided by Denominator.

The result equals the proportion (or $\times 100$ = percentage) of coverage
(that is, of children immunized)

Numbers alone may be meaningless unless compared to the whole group.

For example: 250 immunized ... *out of what?* Is that good?

It's *great* if the total population is also 250. 250 divided by 250 = 1.0,
or $\times 100$ = 100 percent.

It's *not good* if the total population is 1,000. 250 divided by 1,000 = 0.25,
or $\times 100$ = 25 percent.

The full range of coverage indicators that may be developed is almost limitless, and should be created specifically in response to the unique characteristics of your program.

Further, this analysis will permit your staff to determine who does not have all of their vaccinations, and to plan follow up visits. Below, we review the most commonly used indicators to track coverage for selected interventions. These are a sampling only. The full range of coverage indicators that may be developed is almost limitless, and should be created specifically in response to the unique characteristics of your program.

Contact with high risk groups

Perhaps a good first measure of coverage to consider here is the percentage of high risk families who actually are contacted according to program priorities. For example, how many children 0 – 23 months of age received at least six growth monitoring

measures during the past twelve months? Or, how many pregnant women received at least three prenatal visits prior to delivery? These coverage measures would look like:

INDICATOR	FORMULA		INFORMATION SOURCE
Percentage of children 0-23 months of age with six growth monitoring contacts in past 12 months	# of children with at least six growth monitoring contacts in past twelve months	X100	Family health folder
	Total # of children 0 – 23 months in census		Census summary or family card
Percentage of pregnant women receiving at least three prenatal contacts prior to delivery	# of pregnant women who received at least three contacts	X100	Family health folder, or pregnancy register
	Total # of pregnant women		Family card

Create health indicators

Immunization Coverage

Basic immunization schedules for children are country-specific, but generally, childhood immunizations include:

- BCG (against tuberculosis)
- DPT 1, 2, 3 (against diphtheria, pertussis, and tetanus)
- Polio 1, 2, 3
- Measles

These generally are recommended to be completed before the first birthday. So, by reviewing data on children 12 – 23 months of age, you can accurately measure the percentage of all children in that age category who received all of their vaccines within the first year. That might look like:

INDICATOR	FORMULA		INFORMATION SOURCE
Percentage of children 0 -23 months of age with all of their immunizations	# of children 0 – 23 months with all of their immunizations	X100	Family health folder
	Total # of children 0 – 23 months		Census summary or family card

... by reviewing data on children 12 – 23 months of age, you can accurately measure the percentage of all children in that age category who received all of their vaccines within the first year.

A comprehensive definition of protection [from tetanus] is for a woman to receive five lifetime doses [of tetanus toxoid (TT)].

For Example:

If there were 225 children 0 – 23 months who received all of their immunizations last year out of 300 children 0 – 23 months, then the formula is $225/300 \times 100 = 75$ percent coverage. *Not bad.*

Tetanus toxoid (TT) is given to women aged 15 - 49 years and/or to pregnant women to protect the newborn from neonatal tetanus. Each country has its own recommended schedule. A comprehensive definition of protection is for a woman to receive five lifetime doses.

Many programs seek to confirm that a pregnant woman has received at least two doses during the most recent pregnancy. If you would like to measure the number of children who were born in the previous year and who also were TT protected, meaning whose mothers had received two doses of tetanus, then the indicator would be:

INDICATOR	FORMULA		INFORMATION SOURCE
Percentage of women who received two doses of TT during past pregnancy	# of pregnant women who received two TT immunizations or who had received five doses	X100	Family health folder
	Total # of pregnant women who delivered in past 12 months		Census summary, family card or pregnancy register

For Example:

If 10 women delivered in the last year and 3 had received TT2, then 30 percent of infants were TT protected.

Nutrition

Nutritional status is measured in several ways: weight/age, weight/height, height/age, and mid-upper arm circumference. Most MOH standards use weight/age, with age adjusted cut-off values to indicate nutritional status: 1st degree (at risk of malnutrition), 2nd degree (moderate malnutrition) and 3rd degree (severely malnourished). Almost all children in your program will fall into either the normal, 1st, 2nd, or 3rd classification. Weight for age is a measurement taken by weighing a child and plotting the weight on a graph, or “Road to Health” chart to determine the nutritional status based on the expected weight for that age.

Monthly weights for at least all under-threes are ideal since nutrition problems may arise quickly, and may be prevented if recognized early. However, many programs weigh children three, four or six times a year, depending on program resources and

access to children. Below are offered examples of indicators for this important intervention:

INDICATOR	FORMULA		INFORMATION SOURCE
Percentage of children 0-23 months who were moderately or severely malnourished during last contact	# of children with weight/age below cutoff for 2nd degree malnutrition	X100	Growth monitoring card in family health folder
	Total # of children 0 – 23 months		Census summary or family card
Percentage of malnourished children enrolled in nutrition rehabilitation program during the past year	# of malnourished children enrolled in rehabilitation program	X100	Growth monitoring card in family health folder
	Total # of children determined to be malnourished and eligible for the program		Growth monitoring card in family health folder

In many developing countries, it is not unusual to find rates of moderate malnutrition of perhaps 20 to 30 percent, and rates of severe malnutrition of between 1 to 5 percent of the total childhood (under five years of age) population. Lowering these rates and improving the nutritional status of these children will require intensive interventions that also must be closely monitored and measured within the context of the CBIO methodology.

Public health knowledge

Client knowledge and practices of important preventive health messages are perhaps the two most important factors contributing to reduced illness and death in your service area. The ability to identify the major causes of death, to create effective preventive messages for your client population, and to motivate individuals and families to change some behaviors is critical to health program success. Thus, it will be important for your program to measure progress in these areas, and to identify areas where further improvements are needed. Below we consider some of the most likely themes for measurement: identification and treatment of diarrhea; identification and treatment of acute respiratory illnesses; safe water access and usage; and, proper disposal of human waste.

Oral rehydration therapy (ORT) Since diarrhea continues to be one of the major killers of under-five children in developing countries, knowledge and use of ORT is an important intervention to prevent these deaths. Each health program, in conjunction with MOH guidance, will need to determine which messages are appropriate for your service population. According to UNICEF, key messages may include:

- Continued feeding and breastfeeding
- Correct mixing and administration of home-based rehydration fluids or packaged ORS
- Timely referral to the clinic (bloody stools, or diarrhea lasting more than two weeks)

A family who knows these three messages will be counted as “knowing”. There is no partial knowing. Either a family member knows all or none. The date that this knowledge is confirmed by a CHW or health volunteer may be noted in the family health folder or on a separate form for later addition to the folder. Validation by a supervisor may be determined either through interviews or demonstrations with family members.

INDICATOR	FORMULA		INFORMATION SOURCE
Percentage of mothers who properly repeat the 3 key UNICEF messages	# of mothers with children 0-23 months of age who correctly repeat the 3 messages	X100	Family health folder
	Total # of mothers with children 0-23 months of age		Census summary or family card
Percentage of mothers who properly prepare packaged ORS	# of mothers with children 0-23 months of age who properly prepare packaged ORS	X100	Family health folder
	Total # of mothers with children 0-23 months of age		Census summary or family card

Acute respiratory illness (ARI) ... is another major killer of children under five years of age in the developing world. Each family should have at least one member who can effectively manage a case of ARI.

Acute respiratory illness (ARI) This is another major killer of children under five years of age in the developing world. Each family should have at least one member who can effectively manage a case of ARI. Major messages to prevent death from ARI include:

- Able to detect the early signs of illness (child looks unwell, is not eating or drinking, lethargy, and fever)
- Continued fluids and feeding
- Timely referral to the clinic for child with danger signs (fast or difficult breathing, with respiratory rate > 50 beats/minute for children older than one, and > 60 if a child is less than one; change in consciousness; vomiting everything; high fever; and indrawn chest)

For ARI, it is critical to recognize when to bring a child to a clinic for treatment. ARI may become serious within a day, and deaths may occur within two to four days of onset. Delaying care seeking will increase this risk of death, and antibiotic treatment should begin immediately. Thus, one measure of appropriate knowledge might include:

INDICATOR	FORMULA		INFORMATION SOURCE
Percentage of mothers who properly repeat at least 3 danger signs of ARI and know to seek health care immediately	# of mothers with children 0-23 months of age who correctly repeat at least 3 danger signs and know what to do	X100	Family health folder
	Total # of mothers with children 0-23 months of age		Census summary or family card

Safe water This intervention usually has two knowledge components: access, and proper usage. Access to safe water may have a major impact on the health of the entire family. The definition for ‘safe water’ may first have to be locally defined, as different countries use different standards. Certainly, we want to ensure that family members drink potable water that has either been taken from a safe, protected source or has been made safe by disinfection or boiling. Appropriate usage of safe water often is associated with proper storage practices without which water may become contaminated and unsafe. What are measures that could be developed to indicate progress on this topic in your health program areas?

Access to safe water ... [and the] ... proper disposal of human waste also may have a major impact on the health of families and their community.

INDICATOR	FORMULA		INFORMATION SOURCE
Percentage of families with potable water available in the home, and safely stored and used	# of families with potable water observed in the home, and safely stored and used	X100	Unique data survey form, or family health folder
	Total # of families in measurement area		Census summary or family card

Hand-washing behavior ... also serve[s] as an important indicator for personal and family hygiene.

Sanitary disposal of human waste The proper disposal of human waste also may have a major impact on the health of families and their community. An appropriate indicator on this topic should determine how many families dispose of human excreta in a sanitary fashion. This indicator is measured at the family level since the behavior is basically a household measure. Hand-washing behavior will also serve as an important indicator for personal and family hygiene.

INDICATOR	FORMULA		INFORMATION SOURCE
Percentage of families with a latrine or other sanitary facility that is reasonably clean and in good working order	# of families observed with a sanitary facility that is clean and in good working order	X100	Unique data survey form, or family health folder
	Total # of families in the measurement area		Census summary or family card
Percentage of mothers who report washing their hands after defecation and before food preparation	# of mothers report appropriate handwashing practices	X100	Unique data survey form, or family health folder
	Total # of mothers interviewed		Census summary or family card

Measure mortality rates

Due to the richness of information provided by the CBIO approach, your program will be able to calculate mortality rates for each age and sex group of interest to program planning and evaluation. The most common indicators and formulas are offered below as examples of the rates your team will want to calculate and track over time.

INDICATOR	FORMULA		INFORMATION SOURCE
Neonatal mortality rate (NMR)	# of deaths of children under 28 days	x 1,000	Death register
	Total # of live births		Birth register
Infant mortality rate (IMR)	# of deaths of children under 1 year	x 1,000	Death register
	Total # of live births		Birth register
1-4 years mortality rate	# of deaths of children 1 - 4 years	x 1,000	Death register
	Total # of live births		Birth register
Under-five mortality rate, 0-4 years (U5MR)	# of deaths of children under five	x 1,000	Death register
	Total # of live births		Birth register
Maternal mortality rate (MMR)	# of deaths of women due to complications of pregnancy, birth or during the postnatal period	x 100,000	Death register
	Total # of live births		Birth register

Preparing the data for calculating these rates will be simplified because it has been well recorded through the CBIO process. That is, the population summary charts will be available after the census or annual update, and there will be birth and death data from the vital events registers.

Due to the richness of information provided by the CBIO approach, your program will be able to calculate mortality rates for each age and sex group of interest to program planning and evaluation.

... even data from very small populations remain rich in detail, and coupled with verbal autopsy investigations and mortality assessment meetings, will provide important information to both guide health program planning as well as assess program effectiveness and impact.

Rather than accepting as 'fate' the high number of deaths, changes in mortality rates empower communities to see that their own attitudes and behaviors directly impact their families' health and longevity.

Additional notes on the above rates include:

- **The neonatal mortality rate (NMR)** measures the proportion of infants reaching 28 days of life, per 1,000 live births during the same time period. The number of deaths will not include stillborns, miscarriages or abortions (which we also recommend that your program collect, if possible). These are not considered live births or a death. A 'live birth' is one in which the newborn breathed, moved and/or cried.
- **The infant mortality rate (IMR)** measures the risk of death among infants, 0-11.99 months. It is a rate that measures how many died before their first birthday, out of 1,000 live births.
- **The one-to-four year old mortality rate** measures the proportion of death to children who reach one year of age and up to five years, per 1,000 live births.
- **The under-five mortality rate (U5MR)** measures the risk of death to all infants and children under five years of age (0-4.99 months). It is a rate that measures how many died before their fifth birthday, out of 1,000 live births.
- **The maternal mortality rate (MMR)** measures how many women die as a result of the complications of pregnancy and birth. It occurs less often than childhood mortality, and as a result the accepted norm is to report the number of maternal deaths per 100,000 live births, rather than the 1,000 live births used to calculate the other rates.

Some experts recommend accumulating as few as 20 deaths before calculating a particular death rate, while other experts recommend rates be calculated only on populations of at least 10,000, and some even state over 100,000! (This latter number is truer for calculating maternal mortality rates; see above). This controversy exists because the more deaths that occur, the more statistically stable the mortality estimate is considered to be. Obviously, you work with what is presented to you in your service areas. Practically speaking, we have found that populations as small as 5,000 will provide mortality data sufficient to track rates over time. These rates will be subject to more statistical variation each year. That is, they will go up and down more due to 'random' statistical variation than rates generated with comparable, but larger populations. However, even data from very small populations remain rich in detail, and coupled with verbal autopsy investigations and mortality assessment meetings, will provide important information to both guide health program planning as well as assess program effectiveness and impact.

Assessing local mortality also may instill a new community perspective on the importance of high quality health care. Rather than accepting as 'fate' the high number of deaths, changes in mortality rates empower communities to see that their own attitudes and behaviors directly impact their families' health and longevity. What are the major killers in the community? Are the interventions and behaviors reducing the

number of these deaths? This kind of information is easily understood by any member of a community, and will be considered a primary indicator of success of the health program by community members.

The Seven Sieves

Invariably, it seems that data breeds data and the volume of data will continue to grow over time. It always seems easier to add ‘just one more datum’ to any system and always more difficult to cut back on data collection, whether the data are essential or not. Further, there are several reasons why data collection may be more appealing to community health workers than providing direct health services:

- The collection of data seems official, and ‘justifies’ the position of the home visitor
- Data are black and white (one only has to write down ‘facts,’ perhaps evading the more difficult and uncomfortable realities of illness and treatment; the data doesn’t talk back and is non-interactive)
- Data collection fulfills a job requirement, and is tangible and measurable

In order to fight against this ballooning of data collection, conduct periodic checks to assure that each and every piece of collected data is used. Every six months hold a meeting with the team to review how data are used. This will help to guard against information overload. Only collect what you use and use what you collect. If the data is not used, drop it.

Only collect [data that] you use and use what you collect. If the data is not used, drop it.

Do your selected indicators get through the Seven Sieves?

1. Does the indicator address the problem?

2. Is there a proven association between the indicator and what is being measured (relevance)?

3. Is it nice to know or do we need to know?

4. Is it useful for planning and management?

5. Is it possible to measure technically?

6. Is it worth the time and effort?

7. Does it measure a process or impact?

Data Analysis

Mortality assessment

Mortality assessment meetings should be held on a frequency to permit the careful review of all recent deaths as well as all verbal autopsy forms collected during the past reporting period. Time will be required for discussion, analysis, conclusions and recommendations, and the development of an action plan. This may require meetings as frequently as quarterly, and as infrequently as once per year, depending upon the size of the health program service area and the number deaths that occur. Attendees should include CHWs, their supervisors, and facility health staff involved with conducting or reviewing the verbal autopsy forms. Health volunteers, and community leaders and members may also wish to participate, and they should be actively encouraged to do so. The sources of data should include the death register, verbal autopsy forms, related family health folders, and relevant clinical records.

The overall purpose of this [mortality assessment] meeting will be to determine the factors that contribute to mortality among specific age/sex groups, and to identify actions that may be taken to reduce future preventable deaths.

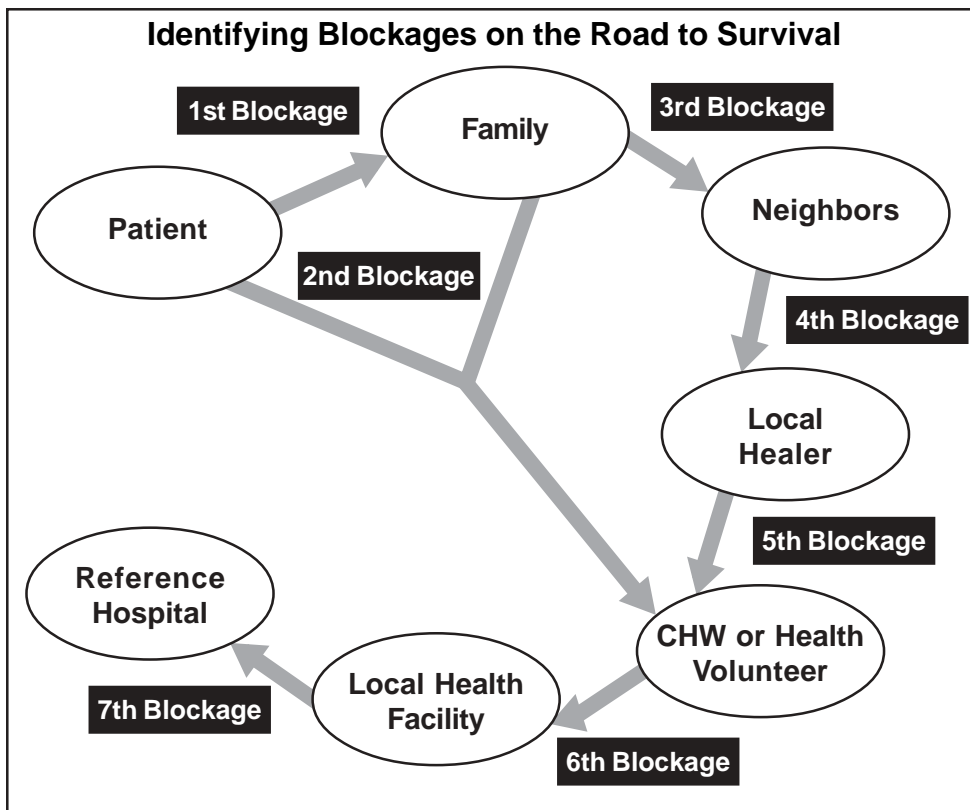
... based on ... results [of the mortality assessments], a plan of action is prepared that will lead to actions to reduce ... blockages to timely and effective health care.

The overall purpose of this meeting will be to determine the factors that contribute to mortality among specific age/sex groups, and to identify actions that may be taken to reduce future preventable deaths. This is done by following an analysis process of:

- Analyzing deaths by cause, and age and sex categories
- Selecting a subset of deaths to study which may have been preventable
- Analyzing these selected cases using family health folders, verbal autopsies reports and other available information
- Forming conclusions and recommendations
- Creating a work plan for corrective actions

The schematic diagram on the following page demonstrates how deaths may be analyzed for 'blockages on the road to survival'.

Blockages may occur anywhere within the family and the home, within the community, and within the health care system. A sick person and his/her family may not recognize danger signs of an illness, may be misinformed about how to cope with the problem, or may not seek health care services because of perceived barriers. Community information and resources may also be inadequate to the situation, resulting in delays that caused the death. Finally, a series of problems could emerge related to the availability and delivery of health care services. These may include: lack of emergency evacuation transportation; failure of the local health worker or volunteer to offer support or services; failure of the local health facility to properly diagnose and treat the problem; lack of proper personnel or equipment; or there could be a failure in the referral process, leading to a preventable death. These blockages are considered during the mortality assessment process, and conclusions and recommendations made. Finally, based on these results, a plan of action is prepared that will lead to actions to reduce these blockages to timely and effective health care.



Attributing mortality impact to your health program

In addition to the mortality assessment activities described above, your program will also calculate annual mortality *rates*, to determine health program impact. These death rates may be affected by larger social and environmental forces, outside of impacts caused by the health program. Public health and social science professionals formally describe these outside forces as ‘threats to validity’ of their assumption that the health program is the primary cause of decreased mortality. Such classic threats of validity include: history, testing, instrumentation, statistical regression, selection, mortality, diffusion of the intervention, compensatory equalization of treatments, and compensatory rivalry, or resentful demoralization of comparison group respondents. (Cook and Campbell, 1979)

A common way to minimize threats to causal interpretation is to measure a ‘control’ population which is identical to the health program (intervention) population, except that it does not receive health services. In the ‘real life’ of PHC programming, this is difficult if not impossible to achieve. Most obviously, it is unconscionable to consider withholding health care from needy populations in order to assess differential impact. If resources are unavailable to provide health services to everyone in an area, theoretically it would be justifiable to provide services to only a portion of the population. In most cases, however, it remains difficult to imagine a situation where local populations would easily accept such a study, or at least be offered the certainty of future health program entry. Further, the practical considerations of successfully implementing such a strategy are daunting. Again, this is a compromised ethical situation that most health professionals would choose to avoid.

These alternatives [comparison group, cohort study, etc.] address many of the concerns of causal attribution, but without the ethical violations we encounter with the classic control group study design.

Fortunately, there are less ethically offensive alternatives to a ‘control’ population. These alternatives address many of the concerns of causal attribution, but without the ethical violations we encounter with the classic control group study design. We review them briefly here.

Comparison Group

In this study, a population group is found that is similar to the intervention population, but the health services in place there are not ‘controlled’, but rather are documented and continue uninterrupted. This permits the study of a ‘comparison’ population (with presumably an inferior health program in place) that is very similar to, but clearly not identical to the intervention population. All other factors which might explain differences between the two populations may be measured and compared, allowing the study directors to describe the actual differences between the two populations and (they hope) minimize the ‘threats to validity’ that these factors might pose otherwise. At study’s end, the directors will be able to compare mortality rates before and during the introduction of health services in the intervention area with those of the comparison area, as well as describe any factors that systematically differ between the two areas, leading to the opportunity to attribute mortality decreases in the intervention area to the health program.

Cohort Study

In this approach, you assess the characteristics of individuals you wish to study in your intervention area, and attempt to match them to individuals (singly or in a group) from the same area who had different outcomes. For example, for every death of a child under five years of age in your health program area, you could look at the basic census and health data collected on that individual, and match that with an individual who appears similar in most or all of these factors, but who did not die. You are seeking to identify differences between these individuals that may provide meaningful clues to the different outcomes. Cohorts may also be tracked longitudinally (depending on what you study), in order to look for emerging trends.

Other similar health projects in the country

This comparison permits limited or no ability to compare factors that may influence outcomes. Nevertheless, it will offer insights into how similar populations respond to differing types of health services.

Local and national data

This is a quick yet useful means of comparing progress within your health project with data from similar areas around the country. This approach allows for apparent control of regional and national level factors affecting mortality rates, but remains a much weaker study design overall. In addition, the way in which the mortality data are collected and reported may vary considerably, further complicating comparisons. If you are interested in this approach, and do not have immediate access to national level data, you may contact the International Data Base (IDB), a computerized data bank containing statistical tables of demographic and socio-economic data for 227 countries and areas of the world (at <http://www.census.gov/ipc/www/>

[idbnew.html](#)), or you may contact the Demographic and Health Survey Program (at <http://www.measuredhs.com>).

Intra-program trends over time

Within your health project, you should always be able to compare current mortality rates with the results of the past. In other words, how are mortality rates changing? Compare the rates year to year. Are there measurable differences over time? Is the quality of life improving? Does health service usage information correlate with differing mortality rates? We have observed situations where changes in particular health services did result in changes in client behavior, and eventually in cause-specific mortality rates. This is a highly useful exercise to conduct during mortality assessment meetings, or during annual evaluations.

Evaluate and plan annually

The annual work plan serves as the basis for all health program activity, for monitoring and supervision, and for data analysis, that is, an annual program evaluation. On an annual basis, your health program staff will participate in an evaluation workshop to review all program objectives and indicators, to confirm that activities were carried out, and that expected results were achieved. In the case that objectives were not achieved, an analysis must be conducted to determine the barriers to completion. These results will be used during the annual planning workshop to determine actions for the coming year, and to address shortfalls and barriers encountered during the past year.

Evaluation workshop

The structure of the annual evaluation workshop should flow from the outline of the annual plan. That is, objectives and indicators are divided by intervention, or by other headings, such as: logistical support, supervision, community development activities, and pharmacy, to name a few of the most likely themes. Cross cutting themes may also be addressed at this time, such as: behavior change communication; health volunteers; or time management skills. The entire local program staff should participate, including all health volunteers, and sufficient time dedicated to this event. We found that the annual evaluation workshop usually requires three to five days. The meeting should be held in a local community facility to accommodate all team members, as well as to provide meals and recreation during breaks.

Small working groups are the process of choice to complete the workshop in a time efficient manner. For each intervention or topic heading, form a small group, composed of one or more individuals familiar with the topic, and others who are not. The size of each group will vary (but usually does not exceed five members), and is dependent upon the amount of data extraction and analysis required. Request all groups to use flip chart paper and markers, using a standard column format. That is, they will present each objective, the indicators and formulas that relate to the objective, results achieved, and observations and recommendations offered. Several different groups will be working concurrently, and supervisors and managers may

We have observed [intra-program trends] ... where changes in particular health services did result in changes in client behavior, and eventually in cause-specific mortality rates. This is a highly useful exercise to conduct during mortality assessment meetings, or during annual evaluations.

The entire local program staff should participate [in the annual evaluation workshop], including all health volunteers, and sufficient time dedicated to this event.

float around to provide constant assistance, problem-solving input, and encouragement.

A rhythm usually evolves of several hours of concentrated small group work, followed by reporting out to the entire group, perhaps repeated twice daily. Some groups will complete their tasks sooner than others, and supervisors should anticipate this and guide individuals who have completed their work into tasks related to the next set of interventions to be reviewed. During plenary sessions, working group members will share the responsibility of presenting their results. Group member will take turns to:

- Review each objective of the intervention, all of the indicators for the objective, and the results that were produced.
- Describe how indicators were calculated, where the data were found, and any observations about the analysis process that may be helpful during the next annual planning workshop.
- At the end of each intervention presentation, conclusions and recommendations should be made to the plenary group, followed by a general discussion, asking for additional comments and suggestions. These should be noted directly on the posted worksheets.

The above process should be repeated until all working groups have made their plenary reports. A wrap up session at the end of the workshop offers the opportunity to identify overarching themes that emerged, and to plan for the next workshop soon to follow: the annual planning workshop.

In times past we have attempted to combine both annual evaluation and annual planning workshops into one event, but such meetings inevitably became too long, and creativity and momentum were lost prior to completing the new annual plan. We recommend separating the two workshops by several weeks. A natural annual cycle emerged in Bolivia when the annual evaluation was conducted in early December, followed by an annual planning workshop a month later, in early January. A challenge to this schedule was keeping sufficient staff in place in the program areas during the workshops and also during the Christmas holidays. Again, the administrative work of the program should not interfere with the ongoing delivery of health services, although this sometimes proves difficult to entirely avoid.

Encouraging humor, team building, candid criticism, as well as seriousness to the tasks at hand is challenging, but is ultimately important to a successful meeting.

Encouraging humor, team building, candid criticism, as well as seriousness to the tasks at hand is challenging, but is ultimately important to a successful meeting. Careful planning in advance of the workshop is essential. Recreational breaks that involve soccer, volleyball, ping pong, or other sports in which both genders may participate is helpful to relieve long hours of meetings, as is forming an entertainment committee to come up with fun things to do for participants throughout the meeting.

Planning workshop

In many ways, the planning workshop mirrors the recently held evaluation workshop. Further, it will be guided by the results of the data analysis conducted during the evaluation workshop. All participants of the evaluation workshop should also be the attendees of the planning workshop. In addition, community leaders and members should be invited to provide input on community preferences and priorities, to review the suggested work plans, and to offer their own recommendations.

Flip chart summary sheets from the previous evaluation meeting will be reviewed and used to begin developing intervention tables. These tables will include: objectives (with measurable targets), activities, indicators, persons responsible, and timelines. Again, three to five days may be required. Small working groups will be the engine that drives new plan development, and workshop organization and conduct will be similar to the evaluation workshop. The final result of the workshop will be a written work plan available to all staff and interested community members. This annual work plan should be prepared and available no later than two weeks after the conclusion of the workshop.

... community leaders and members should be invited [to the planning workshop] to provide input on community preferences and priorities, to review the suggested work plans, and to offer their own recommendations.

CHAPTER NINE

Ensuring Quality



Management

The CBIO approach requires a commitment to a system of monitoring and evaluation (M&E) that will include participation by local communities, your field workers including volunteers, and health facilities. In this chapter we discuss key elements of an M&E system that will ensure the quality of services offered and thereby improve your opportunities to improve health outcomes and impacts. We begin by reviewing the needed personnel capacities required of key players within the CBIO health care system, and how to calculate the human resource requirements of your new program. Routine schedule planning then is considered for staff and volunteers to ensure their efficient time management.

In addition, several sets of tools have been successfully utilized as part of the M&E and quality assurance (QA) processes and are considered in this chapter. These include supervisor checklists, behavior checklists, and cross-checking results with other data sources. We also consider how to develop health messages to promote positive behavior change, and we end the chapter with a discussion of the role of computers to support CBIO processes.

Personnel capacity requirements

Typically there are several levels or ‘cadres’ of health program workers within a CBIO system. These include:

- **1. Front-line workers** Community health volunteers (HVs) and paid community health workers (CHWs) make home visits, lead group meetings, and/or participate in care groups, discussed in Chapter VII.
- **2. Supervisors** About eight CHWs are supervised by one field supervisor, and eight volunteers will be managed by a supervisor. In the case of a CBIO system dependent largely upon home visits and group meetings, supervisors of volunteers usually are the CHWs responsible for specific, geographically defined service sectors where they offer their services. In the case of care groups, the supervisor (‘animator’) may or may not be a CHW.
- **3. Program manager and field coordinators** There is one program manager per program area (usually a municipality or a set of municipalities composing a sub-district area). There are also one or more field coordinators, each of whom oversee about eight supervisors.

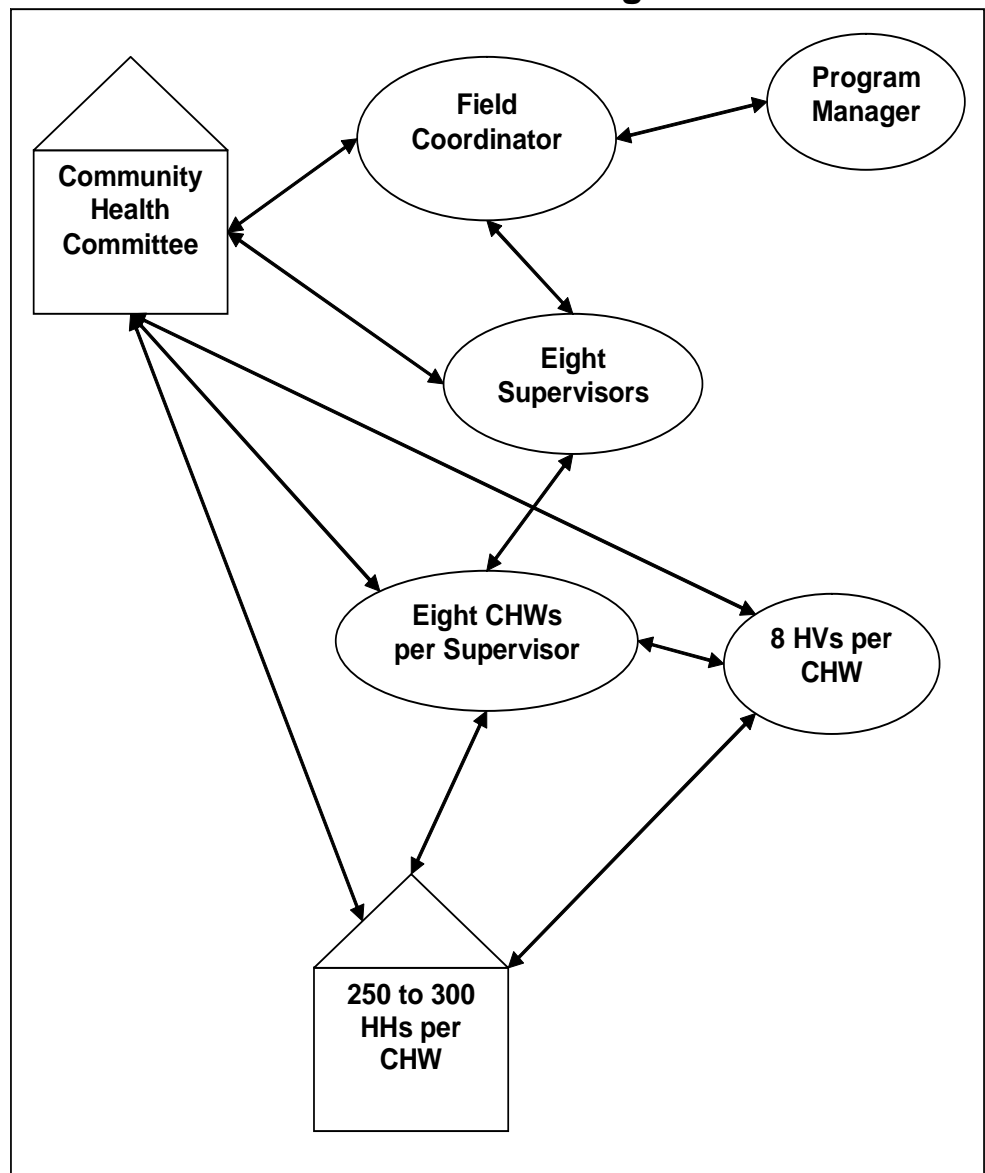
... several sets of tools have been successfully utilized as part of the M&E and quality assurance (QA) processes ... includ[ing] supervisor checklists, behavior checklists, and cross-checking results with other data sources.

Remember that care groups also may be blended with the home visitation/group meeting strategy as well, offering both preventive health education and basic PHC services in the community.

- 4. Community leaders and health committees** Usually there is one particular person delegated within a health committee to officially oversee health program activities per village/community/ municipality, or group of villages and communities. Generally, you find one health committee per village/community/municipality, although this is highly variable and depends upon local community structures and norms.

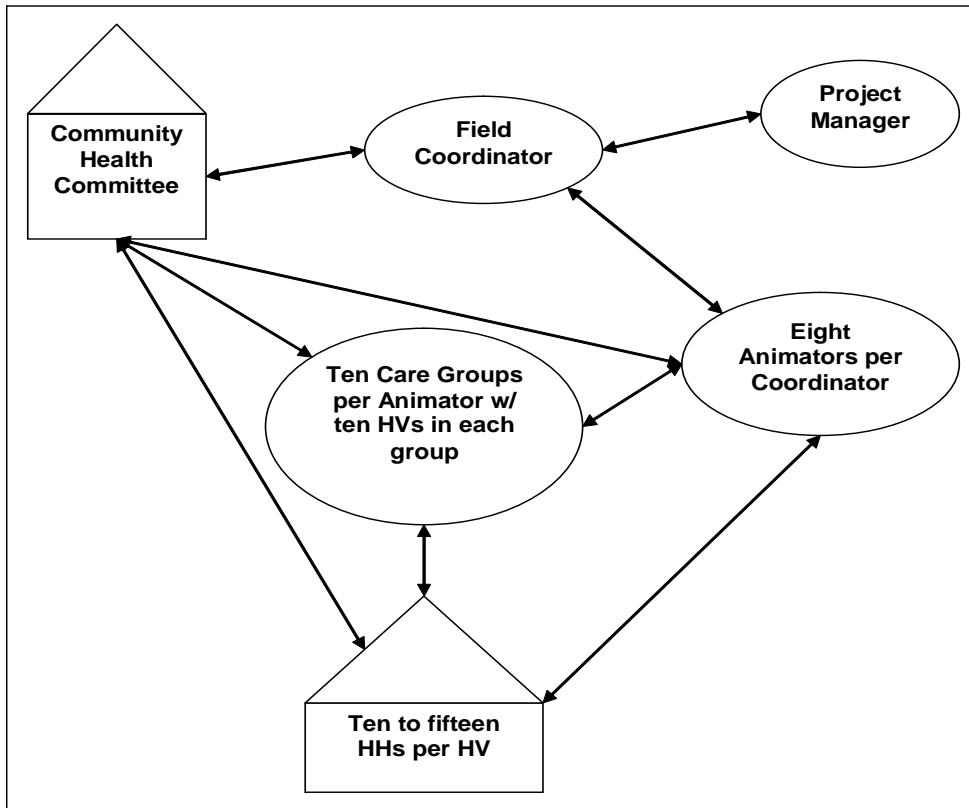
Two schematics follow that demonstrate the relationships among these health program players, one in a home visitation/group meeting approach, and another in a ‘pure’ care group approach. Remember that care groups also may be blended with the home visitation/group meeting strategy as well, offering both preventive health education and basic PHC services in the community.

Home Visitation Staffing Pattern



KEY: CHW = Community Health Worker
 HV = Health Volunteer
 HH = Household, or family

Care Group Staffing Pattern



KEY: HV = Health Volunteer
HH = Household, or family

In the first diagram, 16,000 to 19,200 families may be reached in the example. (We discuss the assumptions underlying this calculation further in the next section.) CHWs and HVs offer complementary services in the home, both preventive education and basic PHC services. In the second diagram, HVs are acting in their capacity of care group members, and about ten to fifteen households are reached by each volunteer. This 'care group only' diagram appears to suggest a more simplified approach to home visits and service delivery. This is both true and not true.

The staffing pattern of the care group only model is more simplified, and staffing costs would be reduced accordingly. About 8,000 to 12,000 families would be reached by HVs with health messages in this example. This is fewer than the first example, but the numbers could be increased if supervisors were introduced into the care group model, doubling the number of families reached with two supervisors in place. More supervisors would increase the number of families reached. Importantly, health care services in the care group model would be offered only through the aggressive promotion of, and referral to local facility-based health care. This implies a clinic based health system that is sufficient to meet demand, and that is well integrated with care group plans and activities.

In both diagrams, the community health committee is ubiquitous in its ability to function at all levels of program services, acting as advocate for families, health

In both diagrams [shown on this and the opposite page], the community health committee is ubiquitous in its ability to function at all levels of program services, acting as advocate for families, health volunteers, as well as program staff.

volunteers, as well as program staff. They may interact at any of these levels, both formally and informally. We now summarize the duties of the health program cadres described above.

Community health volunteers

Health volunteers provide basic preventive education to families, report illnesses and vital events, and support their local CHW as requested. A health volunteer must come from the area where s/he works, and may or may not be literate. Key responsibilities of the volunteer include:

- Provide health education to families and community groups
- Support CHWs during group meetings
- Make home visits to carry out selected activities in the assigned geographic sector
- Report illnesses and make referrals (and follow up)
- Provide some limited home-based case management to selected clients
- Work with and support the actions of the local community health committee
- Monitor families' health status using CBIO tools and processes
- Report vital events to the supervising CHW or local vital events coordinator
- Prepare simple statistical reports, and/or report monthly on health sector activities
- Regularly analyze the health data with the community health committee and health staff
- Participate in health program planning and evaluation activities

Community health worker

The ideal community health worker will have a primary school education or better, and will come from the community or area s/he serves. CHWs provide a range of basic PHC services, including both preventive education, and curative services. The range of services offered will be determined by MOH policy for workers at this level of responsibility, and the program's ability to technically support and fund these positions. We have had positive experiences working with the MOH to initiate pilot projects that allow CHWs to expand their responsibilities to include certain key curative services otherwise prohibited. For example, these have included dispensing antibiotics specific to the treatment of pneumonia and diarrhea. Typical responsibilities of the CHW include:

- Provide health education to families and community groups
- Conduct group meetings, and home visits in an assigned geographic sector
- Offer health services in a local health post or clinic, as well as in the community
- Provide home-based case management to clients
- Train, supervise using checklists, and work with 8 to 10 health volunteers. In the case of care groups, the animator (who may or may not be a CHW)

[Curamericas has] had positive experiences working with the MOH to initiate pilot projects that allow CHWs to expand their responsibilities to include certain key curative services otherwise prohibited."

may manage eight to ten care groups, composed of eight to ten volunteers each, who in turn, oversee ten to fifteen families each.

- Conduct performance reviews of health volunteers
- Work with and support the actions of the local community health committee, and post and update public health data
- Monitor families' health status using CBIO tools and processes
- Maintain the local vital events notebook
- Prepare monthly statistical reports on the assigned health sector
- Prepare and present quarterly program feedback reports to community health committees and other groups
- Regularly analyze the health data with the community health committee and health staff
- Participate in program planning and evaluation activities

Supervisor

The supervisor oversees eight to ten CHWs. Often the supervisor served previously as a CHW, or has come from another similar organization and has direct supervisory experience. Supervisors should be natural leaders among their CHW peers, and be able to maintain collegial and professional relationships with community workers and leaders. They should have extensive hands-on field experience and be able to quickly identify problems or challenges to successful program implementation and take quick and effective action to resolve problems. Activities of the supervisor usually include:

- Regularly analyze the health data with the community health committee and health staff
- Train CHWs and HVs, and offer ongoing continuing education, using supervisory information to identify CHW and HV needs
- Apply skills-specific checklists to assess CHW and HV performance through observation during frequent field visits
- Conduct performance reviews of CHWs
- More frequently visit CHWs with technical or administrative challenges. Supervisors may also pair a weaker performing CHW with a stronger one, in order to benefit from peer-to-peer knowledge and skills transfer.
- Accompany and support CHWs during group meetings
- Plan monthly CHW and HV activities during regular monthly meetings
- Conduct spot checks of data, and mini-KPC surveys to validate program data
- Supervise data collection activities
- Verifying the timely and accurate completion of required monthly CHW statistical reports
- Participate in the presentation of quarterly program feedback reports to community health committees and other groups
- Produce a monthly statistical report and submit it to the field coordinator

Supervisors should be natural leaders among their CHW peers, and be able to maintain collegial and professional relationships with community workers and leaders.

Supervisors will need to have confidence in and be willing to share information candidly with the field coordinator in order that the program meets its client needs effectively.

- Lead data analysis activities with field staff, such as for assessing growth monitoring and nutritional status, coverage statistics, and death rates

Field coordinator

A field coordinator usually oversees and supports about eight to ten supervisors. Supervisors will need to have confidence in and be willing to share information candidly with the field coordinator in order that the program meets its client needs effectively. That will require that the field coordinator to develop close working relationships with her/his supervisors so that problems and concerns are quickly identified and are addressed at the appropriate level of program staff. Core activities of the field coordinator usually include the following:

- Train supervisors, CHWs and HVs as needed, based on supervisory reports and observed needs
- Accompany supervisors to the field, and provide guidance to improve supervisors' performance
- Conduct performance reviews of supervisors
- Conduct spot checks of data collection and reporting
- Lead data analysis activities with supervisors and field staff and prepare written summaries of results
- Ensure the timely submission of accurate statistical reports to the MOH and key funding agencies
- Produce tables to synthesize data in the reports
- Provide routine written monthly descriptive and statistical reports to NGO headquarters that identify accomplishments, shortfalls, and strategies to address the shortfalls
- Conduct monthly and quarterly meetings with technical personnel
- Use collected information to make programmatic decisions
- Develop action plans to address priorities and problems
- Support the program manager in the development of new project concepts and proposals based upon past experience and recognized unmet need

Program manager

The program manager oversees one or more field coordinators and ensures that the overall goals and objectives of the program are successfully being addressed. The program manager represents 'senior management' of the health care organization at the program level, and is ultimately responsible for the performance of the program to the organization. Specific activities of this position may include the following:

- Review plans for monthly CHW and HV activities during regular monthly meetings with the field coordinator and supervisors
- Conduct spot checks, and participate selectively in project activities, from training to field visits to clinical service provision
- Conduct performance reviews of the field coordinator(s) and review performance review results of all other program staff
- Coordinate training and continuing education resources and schedules

- Represent the program in local, regional and national fora, and promote staff participation as appropriate to build their skills and confidence in program representation
- Regularly review the results of supervisory checklists with the field coordinator and ensure that appropriate follow up is provided
- Routinely review reports to be submitted to the MOH and other funding agencies, as well as written descriptive reports submitted by the field coordinator(s)
- Working with the field coordinator, use collected information to make selected programmatic decisions and develop action plans to address identified problems
- On a continuous basis, ensure that program activities are addressing the goals and the objectives of the program and make any adjustments necessary to ensure success
- Review financial reports to ensure that program resources are being used consistent with program goals and objectives, and problem solve with staff when limited resources require making choices among priority activities
- Provide leadership in the development of annual program plans, based on the results of annual evaluations, consistent with program resources
- Maintain relations with MOH representatives, in-country donor agency representatives, relevant professional health organizations, and the public
- Seek potential future funding for the program and prepare reports and proposals as needed to fulfill this objective

Community health committee

This committee is composed of community members selected by the community. Committees' objectives include offering support, supervision and input to health program staff, participate in program evaluation and planning events, and to serve as the 'guarantor' of health service access to the community they represent. Individual committee members may have unique roles and responsibilities in some settings, such as maintaining vital events registers, or coordinating emergency evacuation transportation when needed. Committee members also will reinforce and promote key health messages, and will encourage sick individuals to seek appropriate care. A listing of key community health committee tasks may include:

- Monitor project progress at the community level through direct participation, and through regular meetings with health staff and volunteers
- Hold meetings with locally elected officials to share progress and results, and to advocate for local resources for the health program
- Provide systematic feedback to their communities, and ensure the posting of current public health data
- Assist in the selection and support of health volunteers
- Collect and analyze selected health and demographic information
- Participate in performance reviews of CHWs and health volunteers
- Assist CHWs and HVs in problem-solving difficult cases

[Community health committee members [responsibilities] also will [be to] reinforce and promote key health messages, and will encourage sick individuals to seek appropriate care.

- Attend monthly and quarterly meetings with health staff
- Participate in annual planning and evaluation workshops

Estimate human resource needs

You and your management team first must realistically determine the range of services to be provided by each cadre of health worker. Secondary to those decisions, how many families will be contacted on a monthly basis by these workers? Clearly, you must know the size of your defined high risk population, and what services will be targeted to them, and at what frequency. This question often focuses around the CHW, and how many families can be reached by that person per month, through direct home visits, group meetings, and visits by family members to the local health post or clinic. Further, the ratio of health worker to population or to households must be logistically practical. Factors that influence this consideration include: population size and density; the number and types of services and education to be offered in homes, group meetings, and in the health facility; the mode of travel of the CHW; and, the number and capacity of HVs to assist in these activities.

Ratios of CHWs to the population vary considerably and the ideal number will depend upon answering the questions posed above. In a rural Himalayan program area, with houses dispersed widely among mountain ridges and valleys and rivers, the ratio would need to be quite low. For the urban slum areas of Jakarta, Indonesia, the ratio may be much higher, since households are in close proximity and can be reached within a short distance quickly. In Haiti, the Haitian Health Foundation (HHF) maintains about one health agent per 250 households. FOCAS employs 40 CHWs for a local Haitian population of about 10,000, with about 2,000 families. Thus, each CHW is responsible for 50 families, or about 250 people per CHW.

During the past decade in Bolivia, Consejo de Salud Rural Andina (CSRA) has reported that there were approximately one physician and one mid-level health professional (such as a nurse) for every 5,000 persons, and one 'lower level' health worker (CHW) for about every 1,500 persons. This works out to be about 275 families per CHW. Services in communities (that is, outside the walls of health facilities) were provided by both full-time CHWs, and part-time community health volunteers. In one evaluation, CSRA and Curamericas reported ratios of families to all project field staff and volunteers of 23 - 33 families per paid staff member or health volunteer, the exact ratio varying by health sector needs. This represents about 150 people per health worker. Approximately one to two health volunteers per community were trained and supported. The ratio of families per volunteer increased with time due to drop-outs among volunteers, becoming 48:1 (that is, 48 families per volunteer) by the middle of the five year project, and further reducing to 64:1 during the last year of the project. The training, maintenance and support, and further recruiting and training of new volunteers to replace those leaving is a significant investment of program resources that should not be underestimated during program planning. Further, the quality of volunteer selection, training and ongoing support will greatly affect attrition (loss) rates.

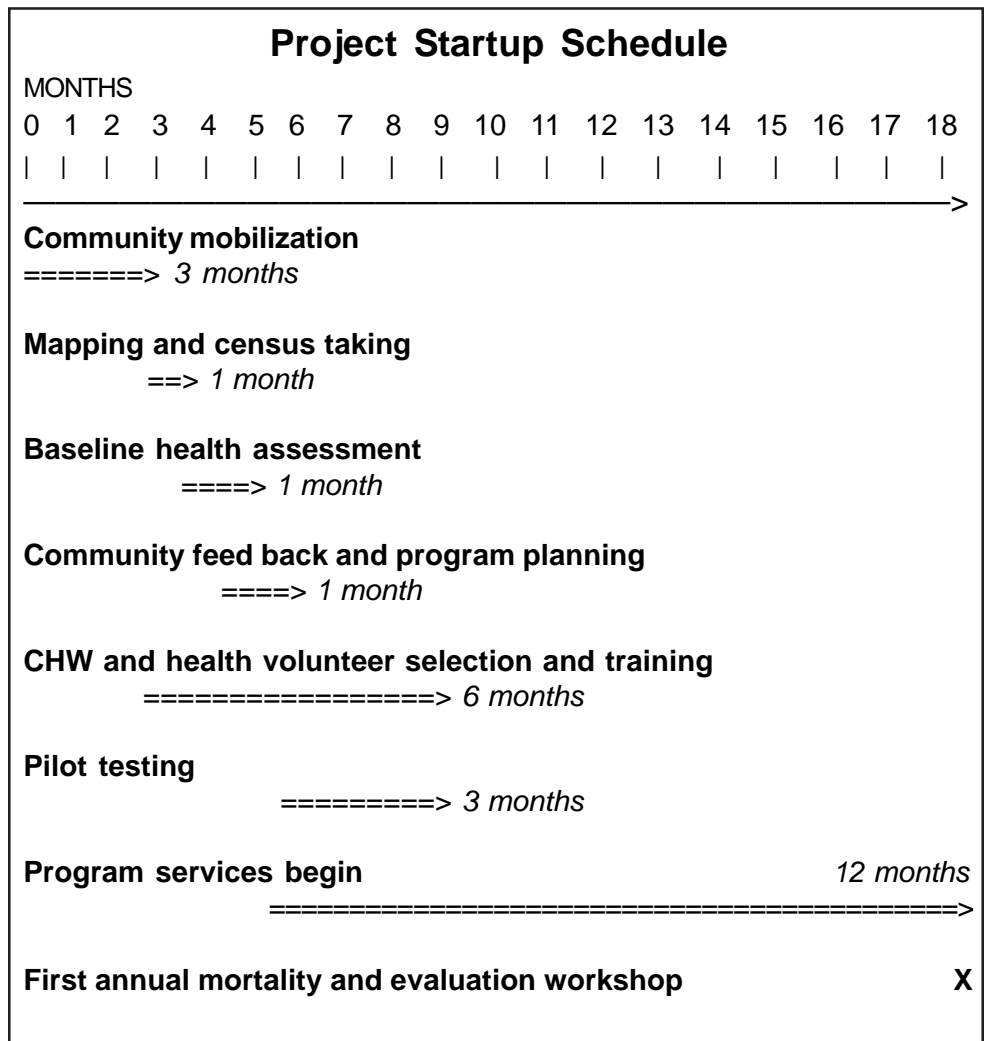
The training, maintenance and support, and further recruiting and training of new volunteers to replace those leaving is a significant investment of program resources that should not be underestimated during program planning.

Overall, to maintain an outreach program of home visits and group meetings, about 250 to 300 families per CHW seems to be a reasonable ratio of families per paid field worker, understanding that these workers will also depend upon local health volunteers to conduct some activities.

In the care group context, services are being targeted to specific families, and the calculations are straight forward. There are ten to fifteen families supported by each care group member, and care groups are composed of about ten women. Animators should be able to support the activities of about eight to ten care groups. This means that an animator may be able to reach about 1,000 to 1,500 families through this strategy. Clearly, this is too many to offer direct in-home health services to all families by the animator, but it is a cost-effective strategy to target preventive health education messages to high risk families, and to encourage use of local, high quality facility-based services.

Schedule activities

We estimate that initial program planning and data collection will require about six months to complete, the health care program can be in place and running well within twelve months, and the first evaluation workshop may be held at the end of eighteen months. Here is an example of a typical program startup process:



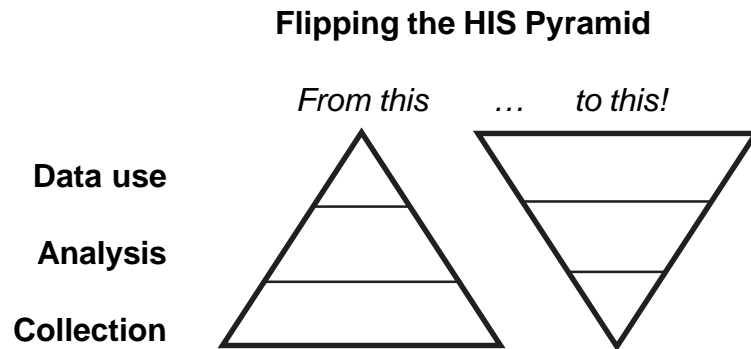
Overall, to maintain an outreach program of home visits and group meetings ... 250 to 300 families per CHW ... [is] a reasonable ratio of families per paid field worker ... depend[ing] upon local health volunteers to conduct some activities.

Clearly, this [one animator to 1,000 to 1,500 families] is too many to offer direct in-home health services to all families by the animator, but it is a cost-effective strategy to target preventive health education messages to high risk families, and to encourage use of local, high quality facility-based services.

During meetings to plan quarterly and monthly plans, supervisors and field managers will have the opportunity to ensure that data collection, management and reporting of the field worker does not become the 'tail that wags the dog.'

Once an annual plan has been created and finalized, field staff will find that they manage their work much more effectively with the use of quarterly work schedules, and monthly individual work plans. Quarterly work schedules allow workers and supervisors to estimate the total number of days available for work, and permit group planning for training, continuing education, analysis workshops, special studies, and the like. Monthly plans are more detailed, and allow each worker to individually plan exactly when and where they will be conducting different services such as home visits, group meetings, regular and special meetings, as well as to prepare their statistical reports, among other tasks.

During meetings to plan quarterly and monthly plans, supervisors and field managers will have the opportunity to ensure that data collection, management and reporting of the field worker does not become the 'tail that wags the dog.' In other words, we want health workers to invest most of their valuable time providing direct services, rather than preparing for and reporting about those services. A simple device to remind your staff of the importance of service versus data, is to discuss 'flipping the health information system (HIS) pyramid.'



The more time we spend collecting data, the less time there is for analysis, and the less time there is for using the data to serve clients. Rather than spending time in the bottom one-third of the pyramid with data collection, leaving less time for analysis and even less time for use, flip the pyramid. Spend the least amount of time collecting data, more time analyzing the data, and the most time applying that knowledge to provide targeted and effective services. Or, think of it as: 15 percent collection, 35 percent analysis, and *at least* 50 percent applying the data. Collecting data takes important time away from the real work, and can become a barrier between the health client and the health worker.

Supervision

A good supervisor asks two questions:

- 1. Are we doing the right things?
- 2. Are we doing these things right?

As we have stated before, field staff will require ongoing, committed supervision and retraining in order to maintain the quality of health services, and to avoid the

common pitfall of workers becoming focused on the *processes* of carrying out activities (including data collection, recording and reporting) rather than *outcomes and impact*; that is, resolving family health problems and improving families' wellbeing. Poorly executed health education and service delivery may often be worse than providing no services at all, because of the confusion, frustration, and demoralizing impact that low quality services have on worker and client alike. *Effective management and supervision are probably the most important two factors contributing to effective CBIO program implementation and impact.*

Good supervision is about *supporting* your health team, making them feel that their contributions are important, and that what they do is valued. Based on that sense of confidence and trust, health workers learn to accept their own mistakes and view them as opportunities to improve and do better. They also learn how to be good supervisors themselves. Thus, supervision is about self-assessment, as well as supportive oversight of others. Supervision is applied to all cadres of health workers, including health volunteers. We consider the work of volunteers important, therefore, performance quality is also important.

Having stated the above, many health managers, supervisors and staff believe that supervision is all about judgment and criticism. Their experience has been limited to the metaphorical, periodic 'beatings around the head and ears', which humiliate health workers, discourage candor and honesty, and lead to staff – management tensions. It is understandable that staff with such negative experiences would resist any form of formalized supervision. Unfortunately, this position creates an environment where supervision is judged as always unpleasant, if not superfluous. Good supervision is much more than this, and its absence becomes an assurance that what otherwise could have been a good health program, is not.

There is an important attitudinal component of good supervision. The supervisor should be able to perform all of the key tasks of those they supervise, and should not hesitate to demonstrate good performance wherever appropriate and useful to learning. That means that supervisors must (want to) get into the field with staff, and frequently. We have seen supervisors who view their positions as promotions *from* the field, and it is their earnest desire to stay *away from* that field! This is an ill-conceived attitude that could cripple program quality within a matter of months. In other words, supervisors should normally *not* wear suits and ties, or dresses and high heeled shoes. You want supervisors who are dressed mentally and physically for their field work, and who enjoy this element of their responsibility.

Supervision should be an ongoing and integral aspect of health services. Field workers, both CHWs and health volunteers should expect supervisory visits on both a routine and unannounced basis. Supervisory visits should include preparing written notes taken during the course of visits, and supervisory notes and reports should be reviewed regularly by supervisors and program managers as part of program management, ongoing planning to improve worker performance, and to guide regular, written performance reviews.

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Work performance should not be viewed as a popularity contest among health workers, and all who work within the program must understand this.

Good supervision depends upon supervisors consistently applying both positive and negative feedback to workers, based upon their actual performance. Inconsistent reinforcement of quality standards may be worse than none at all. Work performance should not be viewed as a popularity contest among health workers, and all who work within the program must understand this. Some of the more effective programs we have visited institute penalties for under-performance. In Haiti, one program sanctions CHWs for sloppy data, and if performance does not improve, the worker is laid off for a period of time (from one week to one month) until s/he returns and demonstrates that the level of performance is of higher and acceptable quality. There are also accolades for those with the best monthly data, and recognition for good data reporting

Supervision methods we recommend and discuss below include checklists used during regular supervisory visits, behavioral checklists used by CHWs when working with families and clients, and supervisory cross-checks of collected data with data from other sources.

Quality Assurance Strategies

Supervisory checklists

Supervisory checklists, sometimes called quality improvement (QI) checklists should be created and used for each of the key processes and interventions of the health project. These checklists embody the policies, protocols and tools to be used, and reinforce high quality performance. Some of the processes for which QI checklists could be developed include:

- Conducting and updating the census interview
- Conducting KPC surveys
- Conducting the home visit
- Conducting a group meeting
- Providing individual and group health education
- Managing health volunteers
- Conducting the supervisory visit (for program managers to apply to supervisors)
- Growth monitoring and promotion
- Immunizations
- Management of diarrhea/ORS promotion
- Management of pneumonia
- Micro-nutrient supplementation and deworming
- Family planning counseling

The content of QI checklists may be introduced during the training of the topics to which they pertain. Each time a quality improvement checklist is used in the field, the health workers' score on the checklist will be recorded by the supervisor. The staff should set goals for a steady improvement in the scores of the CHWs and

health volunteers, and/or the maintenance of high scores over time. The checklists should be applied more frequently for CHWs and HVs with lower scores, and less frequently for those with higher scores. From these performance assessments, supervisors will know in what areas individual CHWs need further support and assistance, and what topics generally require more training and/or continuing education. Analysis of aggregate scores, by health worker and by line item of the checklist, may be done quarterly in a team meeting, being sure to code the names to maintain confidentiality, so that the group analysis can focus on improvement of the group rather than “finger-pointing” at individuals.

Below are a series of examples of supervisory checklist items, organized topically. Your managers and supervisors should develop their own checklists based on the processes and interventions of the health program, and continue to refine them with use.

Under-five and Infant Mortality

- a. Have all deaths in this health sector been captured in the vital events notebook during the past three months?
- b. Are all entries in the notebook complete and legible?
- c. Are late term spontaneous abortions and still births being reported, and if so, how?
- d. Were all births of recent infant and under five deaths previously recorded?
- e. How are the causes of death being determined?
- f. Are all target families receiving a verbal autopsy?

Severe and Moderate Malnutrition

- a. Is the schedule of home visits for children with malnutrition being followed?
- b. Does the CHW/VH have the proper equipment and materials, including extra Road to Health cards?
- c. Is the scale calibrated correctly?
- d. Are weighing sessions conducted properly?
- e. Are the weights being plotted correctly?
- f. Is the status determination correct?
- g. Is the worker able to clearly explain the significance of faltering growth to the mother?
- h. Does the mother understand, and is she able to repeat key messages back to you?
- i. Did the worker investigate the major causes of malnutrition: underlying illnesses, food security, intra-familial food distribution, worms, family hygiene, potable water use, etc?
- j. If the child is severely malnourished, has it received a clinical examination to determine if there are underlying

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diseases present. If not, was the mother referred to the appropriate health facility?

- k. Is appropriate counseling offered: exclusive breastfeeding, appropriate introduction of supplementary foods, locally acceptable weaning foods, micro-nutrient supplementation (iodine, vitamin A, iron)?
- l. Is there any indication of gender bias within the family?
- m. Are all of the steps of the visit followed correctly? If not, what is not being done properly?

Immunization (Childhood and TT for Women)

- a. Is the CHW maintaining the cold chain as trained?
- b. Does the CHW have the appropriate stock of vaccines?
- c. Does the CHW follow correct steps to reorder stocks on a timely basis?
- d. Is the infant register complete and up-to-date?
- e. Are infants contacted on a timely basis for immunizations?
- f. Is the CHW following appropriate sterile procedures?
- g. Is the CHW disposing of waste appropriately?
- h. Is the CHW tracking defaulters in a timely manner?

Behavior checklists

The ‘behavior box,’ or a behavior checklist is essentially a supplemental form used by the CHW or HV to serve as both a reminder of key steps to follow during an intervention or activity, and as a record of what activities take place, by ‘checking off’ each step as it is performed by the worker. This behavior checklist has been used most frequently among CBIO implementing agencies to monitor nutrition-related actions, but behavior boxes may developed for any theme judged to improve CHW or HV performance. FOCAS, Food for the Hungry, and other organizations have appended the growth chart on the MOH growth card, generally printing the box on a sticker, and placing the sticker on each growth chart (over a picture or other unused part on the chart). The box has a section for the child’s date of birth, and rows for each of the key behaviors to be monitored.

Aside from being useful for monitoring key indicators, the behavior box can be an improvement to the growth chart in that it documents the mother’s behavior and child’s illness pattern during the child’s first year of life.

Aside from being useful for monitoring key indicators, the behavior box can be an improvement to the growth chart in that it documents the *mother’s behavior and child’s illness pattern during the child’s first year of life*. Some of these elements (such as breastfeeding) are recorded by some organizations on the face of the growth chart (above the curved lines) along with other services or supplements the child has received (such as vitamin A and deworming), but do not provide a set of questions that helps to prompt the CHW as to what main questions should be used during the diagnostic part of the process. Using a “behavior box” allows project staff to conduct a more complete growth monitoring and promotion activity that includes a diagnostic phase and these additional steps:

- Asking the mother what she was doing to make the child gain weight (if the child gained) and complimenting her
- Asking the mother open-ended and closed-ended questions about recent illnesses and the child's current eating patterns (including breastfeeding)
- Negotiating with the mother about what she should do with her child in the coming month, including to:
 - continue doing what she is presently doing correctly
 - change any negative behaviors that need to be changed (identified in the diagnostic phase)
 - identify possible barriers to behavior change, and helping the mother work through those barriers
 - verify that the mother understood the advice given to her
- Asking the mother to commit to the suggested behaviors
- Asking the mother if she has any questions about her child's growth or health

For monitoring at the community-level, the CHW can refer to the behavior box to calculate, for example, the proportion of children being weighed whose mothers are performing the key behaviors. The CHW can also look for trends of malnutrition and related family behaviors at the community level. FOCAS has used the behavior box data to collect quarterly trend data for each of the indicators. To do this, the CHWs are asked to bring their growth charts to a meeting, and supervisory-level staff members lead the CHWs through a series of sorting exercises to calculate each indicator needed (such as the proportion of children 6-10 months of age who are receiving solid or semi-solid food). This information is then used to plot line graphs, target coverage charts, or tables such as the example on the next page ("Proportion of Children 0-5 who are Exclusively Breastfed").

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One method for checking the quality of program field data is to compare ... data with other similar program data, or data from other comparable sources. That is ... cross-checking data from one source to another source, looking for obvious variation that might be explained by error.

%	Proportion of Children 0-5 months who are Exclusively Breastfed																					
	1,000	95	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	
QUAR-TER	Apr '99	Jul '99	Oct '99	Jan '00	Apr '00	Jul '00	Oct '00	Jan '01	Apr '01	Jul '01	Oct '01	Jan '02	Apr '02	Jul '02	Oct '02	Jan '03						

Cross-checking

Quality assurance of the monitoring system should be built-in so that the data are reliable and valid. If incoming data are not of good quality, then the decisions based on them will not be good either. The adage “garbage in - garbage out” clearly conveys the importance of collecting valid and accurate data. One method for checking the quality of program field data is to compare these data with other similar program data, or data from other comparable sources. That is, we are cross-checking data from one source to another source, looking for obvious variation that might be explained by error.

Here are some examples of simple methods for cross-checking data.

EXPECTED DEMOGRAPHICS There are general rules of thumbs in public health regarding estimated percentages of the population to be expected in a developing country within certain age groups. It is a good idea to cross-check your program results with national data to see if your system is undercounting or over counting some of the population, or if there is some systematic variation in proportions reported. For example:

TOTALS	EXPECTED PERCENTAGES	EXPECTED NUMBERS
Total population	100%	8,000 actual
Total number of under-fives	Compare to average family size (national data)	1,333 actual
Total number of under-fives	16-20% of total population	1,280-1,600
Total number of under-ones	3-5% of total population	240-400
Total number of 12-23 months	3-5% of total population	240-400
Total number of child-bearing age	15-49 year-old women 20%	1,600
Total number of live births	According to birth rate (national), i.e. 32	256
Total number of pregnancies	4-5% of total population	320

Remember, these rates will vary from country to country, and should be checked. Also, recall that when comparing program data with national data that you may expect some variation, and you will look for that too! For example, if your program is being established in a remote rural area you may find that proportions for certain age and sex groups may be different, due to migration, or other economic or social factors.

Remember, [demographic] rates will vary from country to country, and should be checked. Also, recall that when comparing program data with national data that you may expect some variation ...

EXPECTED RATES To estimate the rates your program may expect in its service areas, each project can create an expectation sheet using rates from the closest source to the actual area and check to see if their data are similar. If there is a glaring variance, investigate the reason why.

PUBLISHED DATA	EXPECTED PROJECT DATA*	ACTUAL**
Population		
U5MR		
IMR		
Birth rate (expected # births)		
Death rate (expected # deaths)		
Literacy rates		
Complete immunization rate		
TT coverage		
ORT coverage		
Family planning usage		

NOTES:

*First estimate project level and aggregate projects based upon country level figures.

**Actual data may be compared to baseline data collected in previous years if these are available.

You may also compare your data with international data, such as those reported by UNICEF for your country, or for the region. What are the national IMR and U5MR rates when compared to your data? Where does your project area stand? Below are four categories of IMR and U5MR used by UNICEF:

RANKING	UNDER-FIVE MORTALITY RATE	INFANT MORTALITY RATE
Very High	>170	>120
High	95-170	85-120
Middle	31-94	45-85
Low	<30	10-45

SPOT CROSS CHECKING PROGRAM FORMS Periodically, take out a sample of family cards and cross-check them with the rosters and registers. Are the rosters up-to-date? Are the registers tracking the vital events as reported by the family during home visits? Are all data recorded completely and legibly? As another example, simply review pregnancy registries with birth tallies based on birth vital events registers. If the numbers are inconsistent, link each case to its corresponding data and determine where errors are occurring. They often may disclose a cluster of errors leading to a single problem which may be readily resolved, and avoided in the future.

TRENDS OVER TIME How is the information changing from one season to the next? From one year to the next? Has the program made a measurable difference in the community? What are the differences and the reasons why? Perhaps you are seeing improvements in some areas and not others, suggesting systematic variation in quality of services offered, or different service utilization patterns related to life style or to differences in health seeking behavior (and thus to behavior change education impact). These kinds of analyses are fruitful and should be applied during the year, as well as during annual evaluations.

BCC integration

Behavior change communication (BCC) is a strategy applied by your health program team to strengthen the capacity of your health program population to develop and maintain practices (behaviors) that minimize health risk, and to ensure the timely seeking of appropriate health services when needed. A benefit of focusing on specific behaviors to influence or change health status is that the BCC development process itself slows down your staff from ‘rushing to the rescue’ with ad hoc program actions and messages that may (or may not!) influence knowledge and attitudes, and may not lead to the desired behavior changes.

Human behavior and how to change it, as you know from experience in your own life, is complicated. This is especially true in public health, where, just because you know something may good for you, there also will be reasons for not behaving as you know you should! One of the challenges of behavior change communication is to recognize, not only the specific desired behaviors, but also: the ‘readiness to change’ of health program clients; the ‘barriers’ and ‘promoters’ of desired behavior; and, the effectiveness of health program messages, in order that our efforts result in *measurable improvements in health*. Below, we briefly review these themes, and then recommend three strategies you may wish to employ to develop effective health messages.

Specific ‘readiness to change’ stages have been described to include:

- Being aware of the problem
- Seeking information
- Processing and personalizing this information
- Examining options
- Reaching a decision

[Inconsistent numbers] may disclose a cluster of errors leading to a single problem which may be readily resolved, and avoided in the future.

One of the challenges of behavior change communication is to recognize, not only the specific desired behaviors, but also: the ‘readiness to change’ of health program clients; the ‘barriers’ and ‘promoters’ of desired behavior; and, the effectiveness of health program messages, in order that our efforts result in measurable improvements in health.

- Trying the new behavior
- Receiving positive reinforcement
- Sharing information in a multiplier effect

Ideally, your staff will learn to assess the stage of readiness of their target audiences and adapt their messages to address the most appropriate stage of readiness. Messages then are crafted to address the sequential stages of readiness until the participant is ready to trying the new behavior.

Barrier analysis

A strategy related to readiness to change that has been employed successfully by Curamericas and their partners is ‘Barrier Analysis’ (Davis, 2004). Barrier analysis is used to explore the following barriers to taking preventive action:

- Low perceived susceptibility to the illness or problem
- Low perceived severity of the illness or problem
- Low perceived efficacy of the preventive action
- Perception of problematic social norms
- Perceived self efficacy
- Lack of cues for action
- Perceived divine will
- Other positive and negative attributes of the action

The results of this [barrier] analysis allow health workers and participants to identify and overcome potential barriers, and sets the stage for the health worker to ask the health client to ‘commit’ (or promise) to apply a new health behavior for a specified period of time, after which the health worker and client may review how this practice went, and if more support or education is needed.

By better understanding the reasons behaviors are not accepted, the health messages and communication strategies can be adapted to directly address the views. Barrier analysis is a tool that has been used successfully with individual mothers and fathers, and other caregivers. The results of this analysis allow health workers and participants to identify and overcome potential barriers, and set the stage for the health worker to ask the health client to ‘commit’ (or promise) to apply a new health behavior for a specified period of time, after which the health worker and client may review how this practice went, and if more support or education is needed.

In addition to addressing barriers to behavior changes, the *effectiveness* of health messages should be considered during message development. Four key principles for individual and group learning experiences to be effective and positive include ‘keeping it REAL’ (Uccellani and Davis, 2003):

- **Relevance** - participants must see how they could use what you teach them, in their own lives.
- **Engaging** - participants should be actively involved in learning, through conversation, visual presentations, and movement.
- **Applicable** - participants practice what they are learning
- **Liberating** - participants are listened to before, during and after any learning event. Their views inform what is being taught, and what will be done outside of the learning event.

Two additional BCC strategies that have evolved during the past decade and that have been embraced by the US PVO international health community are described below. They encompass many of the concepts shared above, and provide a framework for the developing, testing and refining of effective behavior change messages. References for these approaches also are provided in the text and at the end of this manual.

Learning-centered education

This strategy for developing educational messages is based on the work of Jane Vella (Vella, 2002) and the Global Learning Partners. Much more information on this approach may be found by contacting welcome@globalearning.com and www.globalearning.com. This methodology calls for systematically answering seven questions related to your health program target audiences:

- Why; why do you want to change behavior; why does it matter to the participants?
- Who; who is your audience and who are the teachers?
- Where; where will learning events be located?
- When; when will learning events take place?
- What; what content will we focus on, and what will participants achieve?
- What for; what are the achievement-based objectives you want to meet?
- How; how will this learning occur; what are the learning tasks and materials that will be needed?

The BEHAVE methodology

Another approach to the development of an effective community-based health education program that focuses on positive client behavioral change is the BEHAVE methodology, developed by the Academy for Educational Development (AED). A five day training guide and related materials currently are available over the internet at http://www.coregroup.org/working_groups/behave_guide.cfm.

BEHAVE workshop participants learn to make the four important decisions of any behavioral change project:

- Who are the priority and supporting groups?
- What do you want to help the priority group to do to improve health (behavior)?
- What key factors or determinants are the most likely to motivate them to adopt that behavior?
- What activities can the project conduct to influence the key factors, and the behaviors?

Based on the results derived from answering these questions during the workshop, specific target behaviors are identified and strategies to promote these behaviors and to measure program activity outcomes are developed.

... additional BCC strategies [learning-centered education and BEHAVE] ... have evolved during the past decade and ... have been embraced by the US PVO international health community ...

Designing health promotion initiatives to serve communities and targeted populations ... is at the heart of a public health orientation.

This [ecological] approach [to public health] challenges health program leaders to think 'outside the box' of clinical services, client education, and even CBI O health care strategies.

The CBI O approach ... is a 'pencil and paper' system first and foremost. Its foundation is the collection of home-based data by local community health workers during home visits.

Beyond BCC

Designing health promotion initiatives to serve communities and targeted populations, and not just single individuals, is at the heart of a public health orientation. The collective well-being of communities can be fostered by creating structures and policies that support healthy lifestyles, and by reducing or eliminating hazards in social and physical environments. These approaches embody an ecological perspective and are the foundation for pursuing goals of better health for all. They complement individually oriented behavior change goals with broad aims that include advocacy and policy development. Community-level approaches suggest strategies and initiatives that are planned and led by organizations and institutions. Examples of this broader public health perspective include:

- Developing and protecting ground water sources for clusters of families and communities
- Resolving land disputes and clearing land titles of legal encumbrances
- Establishing community emergency health funds to assist community families facing catastrophic health crises
- Creating a community-based school feeding program

Such community based strategies may result in significant reductions to the underlying causes of illness and death, and may be the most cost-effective means of ensuring equitable health to entire communities. This approach challenges health program leaders to think 'outside the box' of clinical services, client education, and even CBI O health care strategies.

Using Computers to Improve Quality and Efficiency

The CBI O approach does not require computerization. In fact, it is a 'pencil and paper' system first and foremost. Its foundation is the collection of home-based data by local community health workers during home visits. The front line workers carry rosters or family health folders as they travel house to house, and the information is then tabulated by the team and directly fed back to the community, to whom the information belongs.

Most tabulation will entail simple counts of data points and the determination of percentages. Generally, more scientific statistical analyses are not needed at the community level. Dependence on a computer at the community level is not practical for several reasons:

- The data may appear further removed from the community as they are put into a machine, which transforms the data beyond the realm of most health clients' understanding.
- There may be long delays between data entry and creating useful reports.
- There are not always reliable sources of electrical power in rural areas, increasing chances for further delays or the periodic loss of data. If a computer program crashes, the data may be lost forever.

- A computer is expensive to purchase, and the more health workers who require them, the higher the cost to the health program.
- Computers require maintenance, usually by an urban-based service provider. Computer experts also are necessary to design software, to problem-shoot failures, and to repair breakdowns.

In spite of the hazards of computerization, there are some advantages as well, and there are examples of computerized household registration systems that appear to be working well, such as the Haitian Health Foundation's system. While it is tempting for health programmers to create a comprehensive health information system (HIS), it is essential that any automated HIS be as uncomplicated as possible, and for which technical assistance may be easily obtained. In particular, computerization can be quite helpful once hand-tabulation is completed at the project level. Data may be entered at the project (sub-program) level, or at the program level, and the information can flow upward and be readily shared with the MOH, the national program, and with donor agencies. EPI INFO is one example of a statistical package that is free of charge, developed by the US Centers for Health and Disease Control (CDC), and which can easily aggregate data and be programmed to produce graphics and charts.

In spite of the hazards of computerization, there are some advantages as well, and there are examples of computerized household registration systems that appear to be working well ...

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CSTS Capacity Tool Bank. A compilation of tools & resources, objectives and indicators for various levels including the PVO, local partners and community/beneficiaries.
http://www.childsurvival.com/tools/project_planning.cfm

Addition resources are posted on CSTS+ website under Tools – Project Planning and Management.
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