

**UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT
BUREAU FOR GLOBAL HEALTH
OFFICE OF HEALTH, INFECTIOUS DISEASE, AND NUTRITION USAID/GH/HIDN**

PVO CHILD SURVIVAL AND HEALTH GRANTS PROGRAM



**TECHNICAL
REFERENCE
MATERIALS**

GH/HIDN is grateful for the many contributions to this document from public health specialists consulted through the ORC/Macro International Child Survival Technical Support Project (CSTS), other USAID-funded contracts, offices of USAID, and PVOs.

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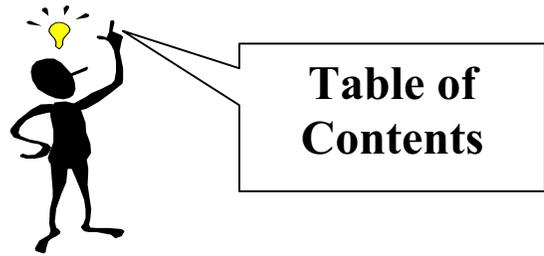


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1 Glossary

AFP	Acute Flaccid Paralysis
AI	Appreciative Inquiry
AIDS	Acquired Immuno-deficiency Syndrome
ARI	Acute Respiratory Infection
BCG	Bacille Calmette-Guerin
BCI	Behavior Change Interventions
BHR	Bureau for Humanitarian Response
CA	Collaborating Agency
CBD	Community Based Distributor
CDC	Centers for Disease Control
CDD	Control of Diarrheal Disease
CHW	Community Health Worker
CORE	Child Survival Collaborations and Resources Group
CSTS	Child Survival Technical Support
CYP	Couple-Years of Protection
DHS	Demographic and Health Survey
DIP	Detailed Implementation Plan
DOSA	Discussion-Oriented Self Assessment
DPT	Diphtheria-Pertussis-Tetanus
EBF	Exclusive Breastfeeding
EmOC	Emergency Obstetric Care
EOC	Essential Obstetric Care
EPI	Expanded Program on Immunization
FE	Final Evaluation
GAVI	Global Alliance for Vaccines and Immunization
GEM	Global Excellence in Management
Hib	Hepatitis B Vaccine
HFA	Health Facility Assessment
HIS	Health Information System
HIV	Human Immuno-deficiency Virus
HQ	Head Quarters
HR	Human Resources
IMCI	Integrated Management of Childhood Illnesses
IR	Intermediate Results
ISA	Institutional Strengths Assessment
ITM	Insecticide Treated Material
KPC	Knowledge, Practice and Coverage Survey
LAM	Lactational Amenorrhea Method
LBW	Low Birth Weight
LQAS	Lot Quality Assurance Sampling
M&E	Monitoring and Evaluation
MIS	Management Information System
MOH	Ministry of Health
MTCT	Mother-To-Child Transmission



Acronyms

MTE	Mid-term Evaluation
NGO	Non-governmental Organization
NIDS	National Immunization Days
OPV	Oral Polio Vaccine
OR	Operations Research
ORT	Oral Rehydration Therapy
PAHO	Pan American Health Organization
PLA	Participatory Planning and Action
PVC	Office of Private and Voluntary Cooperation
PVO	Private Voluntary Organization
QA	Quality Assurance
QI	Quality Improvement
RBM	Roll-Back Malaria
RFA	Request for Applications
RTI	Reproductive Tract Infection
SCM	Standard Case Management
STD	Sexually Transmitted Disease
STI	Sexually Transmitted Infection
TBA	Traditional Birth Attendant
TRM	Technical Reference Materials
TT	Tetanus Toxoid
USAID	United States Agency for International Development
VAD	Vitamin A Deficiency
VCT	Voluntary Counseling and Testing
VVM	Vaccine Vial Monitor
WHO	World Health Organization
WRA	Women of Reproductive Age

Caretaker: An individual who has primary responsibility for the care of a child. Often, it is the child's mother, but could also be his or her father, grandparent, older sibling, or other member of the community.

2 Introduction

Welcome to the 2002 revised Technical Reference Materials (TRMs) from the USAID/BHR/PVC Child Survival Grants Program. This document is a guide (not an authority) to help you think through your ability and needs in choosing to implement any one technical area of child survival. An attempt has been made to keep the language simple to encourage translation for use as a field document.



Essential Elements

- Household/ Community
- Facility
- Health System

The TRMs were completely revised in 2000 and BHR/PVC has made several upgrades to other essential program documents over the last few years (DIP, annual report, mid-term and final evaluation guidelines, and the RFA). The current revision is based on feedback on the 2000 edition solicited from and volunteered by experts and CORE working groups.

The TRMs are organized in two sections. The first section encompasses the areas of program support and cross cutting strategies including capacity building, sustainability and financing, management and logistics, behavior change interventions, quality assurance and monitoring and evaluation. The second section details all of the technical child survival interventions including child spacing and reproductive health, maternal and newborn care, nutrition and micronutrients, immunization, integrated management of childhood illness, acute respiratory infections, control of diarrheal disease, malaria and STI/HIV/AIDS. Within each of these sections, an attempt was made to provide information on three levels: household/community, facility, and health system.

The annex includes an extensive but not exhaustive list of technical references along with their web links or ordering information. These are organized in the same order as the body of this document.

While revisions have been made to this document, it is and will always be a work in progress, which will be continuously revised to ensure that it remains up to date, relevant, and useful to the PVO community. With this in mind, we ask that each and every one of you who uses this document over the next year please keep notes and inform us on the usefulness of these references, information that should be amended or changed, additions and subtractions, and general comments. This will help us keep this document alive and responsive to your needs throughout the life of your programs. Please share comments and any (electronic) translated copies with Michel Pacque at CSTS, michel.c.pacque@orcmacro.com.

This guidance was updated by Michel Pacqué, CSTS, who is grateful for the many contributions and rereads by the Global Bureau PHN Center staff, and many of their collaborating agencies including the QAP Project, the CHANGE Project, the IMPACT Project, the EHP Project, the MOST Project, the DELIVER Project, the BASICS project and other projects; the CORE working groups, and most of all to our PVO partners who continue to use this guide and provide valuable insight on how to improve it.

Based on the technical and management information in the TRMs, a companion document, The Program Planning Checklist has been created by CSTS, <http://www.childsurvival.com>.

3 Section A



Technical Support Areas

- **Capacity Building**
- **Sustainability & Financing**
- **Management & Logistics**
- **Behavior Change Interventions**
- **Quality Assurance**
- **Monitoring & Evaluation**

3.a Capacity Building

Capacity building has been defined in a number of ways. While some common elements have emerged, most agree that capacity building is a process that is highly contextual and rooted in the variables and dynamics within projects. Unlike many of the technical interventions outlined elsewhere in these reference materials, there are few benchmarks or gold standards for capacity building that are based on empirical data. One review notes that most definitions in this area reflect an assumption that there is a linkage between capacity and performance, but that there is little consensus on the role capacity building plays in improving performance, or on approaches to measuring the effectiveness of capacity building interventions.

At the same time, there is a growing body of knowledge that holds promise for guiding the capacity building efforts of development professionals. A recent review indicates that there are numerous frameworks presently in use or being developed for describing or assessing the institutional capacity of development organizations. However, there is an emerging consensus on the attributes required for effective and sustainable institutions.

This section seeks to offer guidance in defining capacity building, offers key questions for consideration in designing a capacity building approach, outlines key elements of a capacity building strategy, and suggests key resources to consult for additional guidance.

Definitions and Key Questions for Capacity Building

Definitions of capacity building have ranged from, “An explicit outside intervention to improve an organization’s performance in relation to its mission, context, resources, and sustainability” (INTRAC, 1994), to “A process by which individuals, groups, institutions, organizations, and societies enhance their abilities to identify and meet development challenges in a sustainable manner” (CIDA). PVOs need to define capacity building in the context of a specific project. While donor-developed definitions for capacity building may be useful guides for conceptualizing the idea in general, community-developed definitions of the term need to drive project activities at the local level.

USAID’s MEASURE Evaluation Project recently conducted an extensive review of the literature on capacity building and arrived at the following definition:

Capacity building is a process that improves the ability of a person, group, organization, or system to meet its objectives or to perform better.

This definition reflects the following characteristics of capacity building in the health sector:

Capacity building should:

- Be a multi-dimensional and dynamic process;
- Be conducted and measured on four levels of society—health system, organization, health personnel, and client/community;
- Lead to an improvement in performance at each of these levels;
- Contribute to the sustainability of the health system; and
- Recognize that it is influenced by the external environment.

Regardless of the definition that one uses for capacity building, a number of key questions are important to consider when planning a capacity building strategy.

How will we target our capacity building efforts?

Implicit in this question is the assumption that capacity building is not done in isolation, but is targeted to specific areas and specific actors that offer the greatest promise for the achievement of program results. In the long term, will it be more beneficial to build capacities of individuals (e.g., CHWs, traditional healers, drug sellers) or systems (e.g. MIS, Administrative Infrastructure, leadership/decision-making structure) within a given organization? Program planners must think strategically about which specific capacities need to be built in order to achieve program results.

Should we measure capacity with self-assessments or objective, external assessments?

This is an ongoing debate within the development community about the relative merits of externally-driven assessments and self-assessment techniques. While self-assessment techniques, which often measure perceptions of capacity, may have limited reliability for M&E purposes, they can be useful tools for fostering ownership of capacity building strategies, building relationships with partners, and they may result in a greater likelihood for improved capacity. Self-assessments can serve as a capacity building intervention when they create a mutual understanding among different stakeholders.

At the same time, there are also objective indicators of increased capacity such as the existence of a functioning MIS system where one did not previously exist; increased health worker skills assessed through ongoing supervision; or MOH staff conducting assessments or delivering services that they had not previously offered. Program managers must carefully choose their assessment techniques in order to achieve the desired results.

How does our capacity building strategy contribute to the sustainability of the overall program?

It is sometimes useful to look at capacity building through the lens of sustainability. If program managers want a desired intervention to be sustained when funding has expired, what areas of capacity, and for whom, are most in need of being built in order to best contribute to sustained outcomes?

Key Elements of a Capacity Building Strategy

A successful capacity building strategy must be based on an initial assessment, reflect strategic objectives that are clearly linked to program goals, and feature mechanisms for monitoring capacity development.

Assessment: At the outset of a project, it is important to conduct a baseline measure of capacity for each of the key partners in the program - the grantee organization itself, the local partner organizations, and the community-based organizations supporting the delivery of health services. A variety of tools have been developed and tested to measure baseline capacity including formal surveys and assessment tools; structured processes like Appreciative Inquiry; and less formal methods such as focus group discussions.

While all capacity assessment approaches are open to measurement biases, they help build consensus by defining capacity and deciding on what areas will be assessed. It is important to select the tool or approach that is most appropriate to the project setting and partner dynamics. Capacity assessment is the introduction to capacity building, and is a critical opportunity for building relationships with partners and facilitating discussions of quality within the grantee organization.

Baseline assessments can be used to develop clear objectives and indicators. (see M&E section.)

Strategy Development: Once baseline data have been collected, and objectives and indicators identified, program managers can plan strategies for building capacity. At a minimum, strategies should be considered at three distinct levels of each intervention.

Individual Behaviors/Skills is the most common area in which development programs approach capacity, and includes strategies such as training to improve health worker skills and monitoring and supervision of health facility staff. Strategies at this level might also include cross-site visits between different PVOs or projects.

Organizational Systems in the broadest sense includes systems within governmental, non-governmental, or community-based organizations that might play a role in service delivery. Examples of strategies which address organizational systems might include a census-based management information system that is integrated into the MOH, allowing data to be fed back into the project to guide policy and management decisions, or assistance to a local partner for the development of a financial accounting system.

Institutional Change allows a program to impact national or local policies, or contribute to the development of a health coalition that can play a role in leveraging greater resources for the communities served by member organizations.

It may not be possible or relevant to develop specific strategies at each of these levels. However, it is important for PVOs to identify what levels are most appropriate for capacity building based on the specific dynamics of a given project. In countries where there is little or no health infrastructure, and ongoing conflict and transition, it may be feasible to support only capacity building strategies targeted at the development of individual behaviors and skills. In other countries where there may be national dialogue regarding the introduction of IMCI, it may be appropriate for a PVO project to contribute to facilitating the introduction of this institutional change in national policy. It is the process of thinking through capacity areas, levels of an intervention and specific targets of capacity building that is key to developing effective strategies.

Monitoring Plan: Once strategies and activities have been developed based on baseline data, it is important to develop milestones for monitoring progress toward the objectives and indicators that have been set. Milestones need to be specific, measurable, achievable, realistic, and time-bound. Monitoring of progress toward capacity building objectives can be an organizational development intervention by itself. Whether through supervisory visits, periodic self-assessments that measure progress from baseline, community-driven discussion groups, or other approaches, the process of reviewing progress toward a given objective allows data to inform decisions.

Capacity Areas

Over the past several years, a number of initiatives have sought to synthesize the existing base of knowledge in capacity building. One such effort was completed by USAID/BHR/PVC's Child Survival Technical Support Project, which conducted a review of existing capacity assessment tools to identify common programmatic areas in which grantee organizations, local partners, and community-based organizations routinely address capacity. Six primary areas of capacity emerged from this review.

Use and Management of Technical Knowledge and Skills: This capacity area describes the degree to which project staff, partners, and beneficiaries possess the requisite knowledge and skills in key child survival interventions. These include immunization, nutrition and micro nutrients, breast feeding promotion, control of diarrheal disease, pneumonia case management, control of malaria, maternal and newborn care, child spacing, STI/HIV AIDS Prevention, and Integrated Child Survival Programs and IMCI. This area further describes how well these individuals are able to access technical resources when new technical challenges arise. Use and management of technical knowledge and skills is a primary area of focus for many development organizations working in the health arena and includes technical training for community health workers and MOH staff, and facilitation of access to State-of-the-Art technical resources for field staff.

Management Practices and Governance: This area includes an organization's capacity in the areas of teamwork, leadership, delegation of authority, internal operations, and autonomy. It also describes the extent to which programs reach planned and measurable performance goals, and whether the governance structure of the organization facilitates or impedes the accomplishment of those goals. Organizations with strong capacity in this area have an organizational vision, mission, and governance structure that guides management practices. These management practices facilitate successful project outcomes.

Administrative Infrastructure and Procedures: This includes management of supplies and logistics, procurement of supplies and equipment, and administrative support and infrastructure for tracking supplies. It also includes the status of communications infrastructure such as telephone, e-mail and transport that might facilitate the success of specific technical interventions.

Organizational Learning: This area pertains to the learning capacity of the organization, whether that organization is a village health committee, a private partner, a project team, or the grantee organization itself. Learning organizations make adjustments to their program based on data collected from their projects, and then document the new and innovative strategies that have emerged from these adjustments. These organizations routinely recognize the interdependence of the host PVO, its partners, and the beneficiary community, and involve all three actors in addressing project challenges and making key decisions.

Financial Resource Management: This includes all issues related to how an organization manages its finances such as the availability of funds for planned activities; the status of financial management and accounting systems; and the accuracy of financial data and budgeting. Organizations with strong capacities in this area regularly use established procedures to maintain revenue and expenses in balance; make accurate financial projections; include financial contingency measures that prevent operational disruptions; modify expenditures on a timely basis to account for revenue shortfalls; and disburse funds in a timely manner.

Human Resource Management: This includes staff development, deployment, recruitment and compensation; performance appraisal; opportunities for advancement; grievance and conflict management processes; administrative personnel practices; supervision; allocation of tasks; and other areas related to the management of an organization's human resources. Organizations with strong capacities in human resource management routinely offer staff training, which contributes to the achievement of the organization's priorities; provide opportunities for staff growth and development; and proactively address the issue of staff turnover.

Capacity building efforts may focus on any combination of the six areas mentioned above, and may be targeted to any one of the multiple actors involved in a given project.

Within this framework, it is important for PVO projects to focus their capacity building efforts on those areas that hold the greatest promise for leading to sustained health outcomes.

3.b Sustainability and Financing

Sustainability can be defined in different ways. In the health community, sustainability usually refers to the durability of a defined set of activities, program components or of an organization itself, with a decreasing level of dependency (or complete independence) from the initial external sponsor



Essential Elements

- Planning For It
- Defining Objectives
- Partnerships

(generally a donor agency or an international organization). There is no simple strategy to ensure sustainability, and no clear set of indicators to measure it. There is, however, recognition that sustainability in any form is unlikely to be achieved without pro-active consideration in project planning and implementation.

It is legitimate and important for a PVO to consider its own sustainability as an organization, and some of the suggested references (see annex) address how strategic and financial planning can help achieve this. More important, however, is improving the health status of a population (the usual goal of health projects, and the primary focus of project managers). It is critical that public health changes and improvements are demonstrated and then continued in the long term. From a project perspective, sustainability is threatened when: (1) the diseases that a program was set up to address remain or recur; (2) activities have not reached full fruition after an initial heavy start-up investment; (3) inappropriate and abrupt termination of programs diminish community support and trust for future programs.

Developing Sustainability Strategies

Definition of outcomes: Planning for sustainability must start with the definition of the long-term, durable, program outcomes. These outcomes could include the maintenance of the project within the PVO structure for a given time after its initiation; institutionalization of project activities and services in a national institution within a given timeframe; or maintenance of benefits or activities by the community itself. A plan for institutionalization can address a range of interventions or, depending on the project's mandate, a set of management systems and procedures judged critical for long term improvements in child survival in the country/region of intervention.

Using different definitions for different interventions: It will often be necessary to develop different definitions of sustainability, and different strategies for achieving sustainable outcomes, depending on the type of intervention. Activities in the areas of planning, management, logistics, service delivery and community-based activities, for example, will all have different constraints, funding sources, staff and training requirements, and costs. Using a strategic management approach (see management section), projects should attempt to specify the threats to sustainability for each intervention, and to propose strategies for counteracting or limiting the impact of these threats. It is important for projects to be realistic about what they can expect to achieve, as this will help in setting reasonable objectives.

Defining objectives: Desired sustainable outcomes will only be reached through the achievement of key intermediate results or strategic objectives. PVOs can make these objectives as explicit as possible and define relevant indicators of progress. Objectives need to relate logically to the defined outcomes. Examples of categories of objectives are summarized below:

- The development of local structures and capacities, including training and supervision skills, or the capacity to operate other essential management systems;

- Accessing, managing and diversifying financial resources, from the recovery of recurrent costs to the diversification of a funding base;
- Developing the demand for services, or promoting new cultural norms in the beneficiary community; or
- Developing “community competence” in key community development issues deemed essential to supporting the healthy environment that will support child health gains in the long term.

Organizational Capacity: Capacity development of local partners is the subject of a specific section of this document. It is important to keep in mind that structures in place do not provide services without the appropriate technical and managerial capacity. In addition, individual capacity is only a first step towards building the capacity of organizations. For program sustainability, organizational capacity often needs to be targeted as a strategic objective.

Financial Sustainability

Financing is obviously a central issue for sustainability. Depending on the type of activity, finances can come from exogenous (public funding or international aid, grants, etc.) or endogenous sources (cost recovery, service fees, community financial participation, etc.). In developing countries, financial sustainability is rarely defined in absolute terms. Depending on the context, PVOs need to define the level of cost-recovery, or the amount of locally generated funding they wish to achieve by mid-term or end-of-project. Funding sources can also be diversified to include donations, private, government, grants, sponsorships, foundations, etc.

PVOs can be reluctant to charge fees because of a concern that fees would conflict with their mission, preventing them from serving poor and underprivileged populations fairly. Cost recovery has, however, become a norm for several reasons. These include the unreliability of governmental and non governmental funds in developing country settings (budgets are often delayed, inadequate, non existent, or time-limited); and the increasing recognition that many clients are willing and able to pay for services that they perceive as being important and of adequate quality. Charging fees can have an influence on efficiency: clients are discouraged from overusing services they do not value, and they may be more likely to comply with treatment that they have paid for. Charging fees may raise the awareness of staff and motivate them to improve quality to continue attracting and retaining clients.

The key principles of any cost-recovery system are:

- Charging fees costs money, and may require new staff. Clearly it is not worth introducing fees if the cost of managing them will be greater than the financial returns in fees;
- Fees may discourage the poor from using services. Determining the fee should be based on two objectives: generating income and preserving/promoting equity;
- There are a number of ways to charge clients. The most common is a fee for service: the client pays when he receives a service or product. Other mechanisms, including credit schemes and pre-payment plans, have also been used. More complicated are health savings and loans, third party payments and mutual health organizations.

Organizations need to decide which services they will charge for, how much they will charge for these services, and whom they will charge.

The capacity to manage finances itself is an additional element required to improve the sustainability of an intervention. Appropriate provisions and budgeting, disbursement procedures, monitoring of expenses, control mechanisms, and financial reconciliation and reporting all play a part in improving the prospect for project sustainability. Some of these elements are discussed in the management section. Any plan for developing the financial sustainability of an intervention, regardless of the organizational setting, should attempt to specify and assess its objectives on these elements.

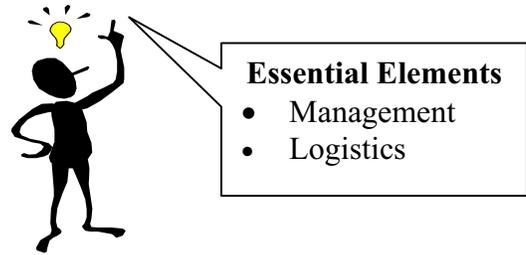
Community Sustainability Strategies

PVOs often use, or develop themselves, approaches to engaging communities as partners. The acceptance, adoption and use of new norms or standards are important elements of sustainable community interventions. Similarly, capacity in the community to plan, manage and implement intervention strategies is also an indicator of potential sustainability. The term “community competence” has been used to describe the complex set of skills and characteristics developed by a community as it increases its control over its future. It becomes useful to illustrate and measure the extent to which partner organizations and beneficiary communities:

- Collaborate on need and problem identification;
- Achieve consensus on goals and priorities;
- Agree on ways and means to implement;
- Collaborate in the required activities; and
- Negotiate methods for financial independence.

3.c Management and Logistics

Programs can achieve desired results if services and activities are technically sound, organized efficiently, and able to supply necessary drugs, equipment and supplies. Management is efficient organization, or the art of “making it happen”. Supplying essential materials requires functional logistics systems, and each will be addressed in this section.



Management

Experience demonstrates that efforts need to be coordinated and organized in order to achieve an organization’s purpose in an effective, efficient, equitable and sustainable manner. The organization of efforts to match resources with strategies and objectives is the essence of management. This organization requires four key elements:

- an *organizational framework* to recognize authority and distribute responsibility, and in which;
- *human resources*, can operate and develop;
- *physical and financial resources* are secured and administered; and
- an *information system* for oversight and support activities is operational.

The management of a child survival project may thus be described as bringing together a mission with people, structures, and systems. Sound planning should always balance these elements: Are the objectives of the project consistent with the organization’s mission? Are strategies coherent with the stated objectives? Have the necessary human resources been identified? Is there a plan for their development? Does the project provide the appropriate structures for the implementation of planned activities? Are systems in place for information, quality assurance and improvement, control functions, problem identification and problem solving? Are the staff’s skills adequate for the systems they are meant to operate?

With so many questions, it is useful to review the essential functions traditionally attributed to management, to consider specific issues for strategic management of child survival projects, and finally to address how these elements can be reflected in a management plan.

Core Functions of Management

The core management functions include planning, organizing, staffing, controlling (assessing), and leading.

Planning: developing a vision and statement of mission; establishing goals and objectives; developing strategies; establishing policies; establishing standards; scheduling; and budgeting.

Organizing: developing an organizational structure (chain of command); establishing control and support systems; determining staff activities at all levels; and adjusting plans and systems after assessment (e.g. quality assurance / improvement processes, problem identification and problem solving mechanisms).

Staffing: developing an organization chart and job descriptions for all staff; defining a recruitment process and a compensation policy; recruiting, assigning and orienting staff; and assessing staff development needs and providing training.

Controlling or assessing: developing a monitoring and evaluation plan; establishing a management information system; assessing staff performance according to clear guidelines and policies; measuring progress; providing feedback; preserving project assets; and ensuring that financial disbursements are fair.

Leading or directing: communicating the vision and mission of the organization; motivating and delegating; managing conflict and change; coaching; developing organizational learning; and information dissemination.

Sound management is not a linear process, but rather the ability to move harmoniously from one function to another. These five core functions can help define the key elements of a management plan, and the roles and responsibilities of program or project managers.

Elements of Strategic Management

Management is too broad a field to be addressed exhaustively in these TRMs, but some themes of management are central to the efficient implementation of a child survival project. In this section we focus on key elements of strategic management: planning; managing a team with appropriate leadership and communication skills; supervision; and partnership and resource management.

Planning

Planning by Objectives

Planning by objectives has become the dominant model for health and development projects over the last decades. Tools such as the Logical Framework have been developed and used extensively to present the goal, objectives and strategies of a project, and relate them to assumptions about the implementation conditions and to evaluation objectives. The results framework is a similar tool used to guide the implementation of activities towards the achievement of clearly predefined expected results (objectives). Defining objectives allows all stakeholders' involved in a project to focus on a common goal, and provides the basis for evaluations. In this sense, planning is also the first step of evaluation.

Planning includes defining the objectives, strategies and information systems required to implement program strategies. Objectives can apply to two levels: (1) technical objectives: related to the health inputs, outputs, and outcomes required to improve the health of children and mothers; (2) organizational objectives: related to the organizational capacity required to make a project effective and sustainable. Results are pursued at these two levels, and can be translated into specific objectives with appropriate indicators of achievement. A plan of action should include strategies to support these objectives. As an example; capacity building can be both an essential element required to lead to a health outcome (improving facility and health worker capacity to deliver a particular service, for example), and it can also be an element required to ensure that the project continues to function and deliver services (training local NGO partners, for example).

Strategic Planning

Sound management requires an understanding of the risks and constraints that will influence the effectiveness of an intervention. A project management plan should make clear what assurances exist on the part of local partners, what assumptions have to be made, and what options the project will have if some of these assumptions are not respected. Planning is always done with an element of uncertainty. Management plans provide a structure, method, and direction to project staff – but need to be flexible enough to allow for shifts in local conditions. They should demonstrate that no essential element has been overlooked and indicate how resources will be used to implement effective strategies.

Strategic planning is a tool used by organizations to systematically assess the strengths, weaknesses, threats and opportunities (referred to as a SWOT assessment) that they face in trying to achieve their mission. A strategic plan helps an organization choose how best to respond to a changing environment. It is a systematic exercise in which priorities are defined and consensus is built around the organization or project's mission and vision. A strategic approach to planning will help a project manager focus on a clearly defined mission and be prepared for problems. It will facilitate choices and decision making, with an eye on the bigger picture of the role of the project.

Child survival projects need to use strategic planning for many reasons. External circumstances change (political unrest in a project area); partnership opportunities open (new local partners); new programs and policies emerge (e.g. the adoption of IMCI in a country); and threats have to be dealt with (e.g. loss of a funding source). Planning must focus on clear end-of-project objectives. Implementation strategies need updating or revising periodically. This is the role of regular activity programming (usually monthly or quarterly). A strategic perspective allows projects to identify critical changes and opportunities in their environment, and adapt implementation plans to help maximize impact.

Managing a Team

The central resource of any organization is its staff. While organizing work, developing efficient systems, ensuring quality processes, monitoring activities and performance, and problem solving are all essential activities of a manager (see M&E and QA sections), most project processes and outputs depend on people. Leadership, communication and negotiation are three key elements for the efficient management of a project team.

Leadership Styles

Leadership is one of the less tangible management functions, but has been proven to be clearly linked to staff motivation and satisfaction, as well as project performance. Leadership is recognizable when observed, but it is often hard to describe.

The table below, Managers' Behaviors Affecting Job Satisfaction, Productivity and Organizational Commitment of Health Workers, adapted from McNeese-Smith, 1997, describes key leadership functions and their potential impact on staff.

Positive Effect	Negative Effect
<ul style="list-style-type: none"> ▪ Giving recognition / giving thanks ▪ Meeting personal needs of health worker ▪ Using leadership skills ▪ Helping / guiding health worker ▪ Meeting unit needs ▪ Being supportive of team ▪ Creating positive climate ▪ Facilitating health worker doing job ▪ Setting standards / organizing work ▪ Being positive influence ▪ Teaching educational focus ▪ Creating open communication 	<ul style="list-style-type: none"> ▪ Not providing recognition / support ▪ Not following through ▪ Criticizing in crisis ▪ Not communicating effectively ▪ Creating negative climate ▪ Not solving unit problems

The behaviors or attitudes of managers who demonstrate effective leadership skills fall into two broad categories; providing direction and providing support. It is difficult to establish absolutes in this area, but effective leadership entails a constant balancing act between these two roles, as is summarized in the table below:

Support and Direction in Supervision (adapted from Williams, 1997)

Directive Behavior			
		Low	High
Supportive Behavior	High	Supporting	Coaching
	Low	Delegating	Directing

Individual or organizational performance problems can frequently be traced to a breakdown in this model of leadership. Strategies for improving leadership practices include:

- providing sufficient direction to staff engaging in new and challenging tasks;
- modeling the appropriate attitudes and practices, both technical and managerial, for project staff to emulate;
- effective, repeated and open communication, allowing the identification of problems, concerns, and the sharing of lessons;
- coaching, which is a combination of modeling behaviors, supporting the development of new roles among staff, encouraging and providing constructive dialogue; and
- delegating responsibility with sufficient authority and resources for staff to achieve success.

Leadership approaches need to be tailored to the skills and competencies of staff and outside pressures (such as the need for rapid results or the need to build capacity with a long-term perspective), and managers need to adopt an approach that suits local circumstances. Mixed messages and inconsistencies versus actual leadership often cause more problems than the style of leadership that is adopted. With time and experience, effective managers tend to evolve towards more support and less immediate direction. This evolution is almost always necessary when projects aim to develop and expand.

Communication

Communication is central to the life of projects. Scientists frequently make the assumption that facts speak for themselves. Organization and communication analysts disprove this assumption. Proactive, determined and clear communication is as vital to the proper operation of a project team as it is for the proper functioning of a project within a PVO.

Entire treatises address communication from both a human and an inter-organizational perspective, and only general communication principles can be suggested here. Key strategies for communication within a team include:

- ✓ Clarity of content and clarity of intent.
- ✓ Consistency across mediums of communication.
- ✓ Consistency from non-verbal to verbal channels.
- ✓ Appropriate use of written mediums (memos, meeting minutes, reports) to establish references, clarify issues, provide orientation, and situate ongoing debates.
- ✓ Dialogue and exchange of ideas is more productive in team communication than mechanical “emitter-receptor”, or top-down modes.
- ✓ Fairness and equity are motivational.
- ✓ More communication tends to be better.

Meetings and discussions across the “water cooler” (or glass of tea) are essential communication tools within a project team. People usually know less than is assumed, and usually want to know more about each other’s activities and roles. Being proactive in clarifying roles, asking for understanding about critical issues, and verifying that transitions and changes are understood goes a long way in keeping a team morale high. While there is no clear standard for how often a project team should meet, it is clear that healthy and functional teams are provided with a regular opportunity to meet, review accomplishments and generally keep all staff at the same level of understanding about the life of the project.

It is also important to make appropriate use of written mediums such as memos, meetings reports and minutes. Written words always seem more formal than verbal exchanges, and it is important to follow culturally acceptable patterns for bringing information and for suggesting change or providing constructive criticism. There is no standard for this, but more communication and dialogue is often constructive. Written documents are, however, essential to formalize important decisions and to clarify complex or ongoing questions at all levels.

Negotiating Change

A common saying is that “change is the only thing that is certain to happen.” Managers who expect plans and programs to stay on course, personnel and relations to remain unchanged over the course of the intervention, funding to be stable and secure, and requests from donors and headquarters to be consistent, foreseeable and timely are bound to be frustrated managers. Good management requires not only accepting change, but also knowing how to lead a team, project, or organization through it.

The ability for a project to respond positively to change depends on the skills of its management structure, the cohesiveness of its team, and of a sound strategic articulation of its plan. For managers leading a project team through change, some essential points can be made:

- ✓ Anticipate and inform proactively.

- ✓ Communicate frequently.
- ✓ Ask questions and answer those questions.
- ✓ Do not hide uncertainty, but place it in the context of the strategic plan.
- ✓ Convey that change is a normal occurrence in a project, and that you and your organization are prepared for it, even if you do not have all the answers to potential problems at any given time.
- ✓ “Accompany” the change: do not let ‘things happen’ without checking on your team’s questions and morale.
- ✓ Get input from your team. Managers do not have all the answers, but they know how to maximize the intelligence and resources of their team.

Change may lead to unpleasant or even painful crises in the life of a project. Open, frequent and consistent communication will help a manager get support from his/her team in going through the crisis. Fairness and clarity of purpose will also go a long way in helping the team accept the changes and take advantage of new opportunities that may arise because of the change. An astute manager will know how to bring his/her team together and look back from a distance at the lessons that can be learned from a recent transition, lessons that can be used to inform subsequent management decisions.

Partnership Development

Local partnerships are critical to child survival projects. Local partners with a knowledge of the local system, language, culture and people can help with a number of program activities including exploratory surveys; baseline data collection and analysis; problem identification and the definition of priorities and strategies; community planning and implementation; and health care delivery. Program planning provides an opportunity to involve and listen to the partners (communities, health authorities, private sector institutions, and policy makers), develop trust and commitment, advocate, and build consensus and support for the project.

All partnerships are different, and there are no clearly defined standards for how to establish them. In general, consistency, clarity of purpose, and open communication help partners relate to one another. There is value in starting with small projects or collaborations, demonstrating success, and then expanding partnership activities over time, as mutual trust and understanding develop through successful collaborative activities.

Key requirements for successful partnerships include:

- 1 Equivalent, or at least consistent and compatible values;
- 2 Mutual trust and respect;
- 3 Thorough partnership planning;
- 4 Win-win arrangements;
- 5 Management / board commitment;
- 6 Complementary partners;
- 7 Careful personnel selection;
- 8 Written documentation of agreement.

Ensuring that many or all of these elements are addressed at the outset, and quantified when necessary, will help sustain successful partnerships.

Supervision: Where the rubber hits the road!

Supervision is a critical issue for child survival projects at two levels:

- ✓ Internal supervision systems for the project.
- ✓ Routine health supervision (facilities, communities, districts) using local systems and staff.

The essential principles of supervision that apply to both of the above levels will be discussed.

a) Supervision Definition and Functions

Supervision is essentially defined as *monitoring and supporting the professional development of workers to improve the quality of care (or quality of service / quality of performance) they deliver.* This applies to the supervision of community health workers in a village, as well as the project accountant, although the nature of their performance standards are vastly different.

The process of supervision makes explicit many of the core functions of management (see above) through encounters between workers at different levels:

- ✓ Supervisors must assess the providers' performance, and rely on various assessment tools to do so in order to correct low performance.
- ✓ Planning and organizing are essential to improving the processes that affect patient flow, logistical systems, collaboration between health workers, or referral systems. Supervisors are required to support the establishment of standards at the facility level, the development of local plans of action, and problem solving activities in order to fulfill these functions.
- ✓ Leadership, as demonstrated by supervisors, is essential to motivate providers in improving their performance. Training activities, conducted or simply identified by supervisors are also essential for improving the performance of workers.

b) Effective Supervision Models – Towards Facilitative Supervision

Because of the need to adapt supervisory systems to many contextual factors (technical areas, geographic, economic and political context, behavioral traits and belief systems of the work force, etc.), a contingency model of management seems the most appropriate for supervision of project activities in developing countries. Simply put, this model posits that supervisors must adapt their approach to fit the particular conditions they face. Supervisors have to demonstrate the skills and sensitivity to apply the most appropriate approach for each particular situation such as using data and information systems to solve problems; reviewing the organization of work at health facilities to improve time available for case management tasks; and involving workers in participatory problem solving. It is sometimes tempting to think of supervisors as mere data collectors and transmitters of information from any central level (health region, project office) to a more peripheral one (village worker, health post, field agents). However, experience demonstrates that systems based on this vision have a limited capacity to support and sustain the delivery of quality services at the end-point.

Key elements of supervision that are linked to improving workers' performance are the relationship between supervisor and worker; the extent to which output-oriented goals can be established and shared; and performance reviews linking supervisory efforts to workers' performance. These observations have provided an important thrust towards facilitative or supportive approaches to supervision. Quality management approaches in health care have also supported this evolution.

Elements of facilitative supervision include:

- ✓ An emphasis on quality improvement.
- ✓ Problem identification and problem solving.

- ✓ Communication and support on process issues.
- ✓ Coaching.
- ✓ Technical support (on-site training, identifying and planning for training needs).

More and more, as quality concepts permeate health care projects, supervisors sensitive to facilitative models also emphasize:

- ✓ Team approaches.
- ✓ Defining values and objectives, clarifying standards, starting with the focus on the “client” of health care services.
- ✓ Data-based monitoring, and decision-making.
- ✓ Defining and measuring compliance to standards of care.

Facilitative supervision requires technical, interpersonal, and conceptual skills, and authority. Training supervisors in supportive supervision includes the technical and organizational elements as well as communication skills, team dynamics and problem solving strategies. There is a shift from individual faultfinding performance evaluation to performance-focused evaluation in which all staff take on problem solving.

Facilitative supervision is an appealing approach because it encourages the development of ‘internal controls’ on the provider’s performance (controls that workers impose on themselves), which are more likely to lead to a sustained compliance to standards. ‘External controls’ (enforced vertically by managers and supervisors) are often less likely to change performance. Even with more defined standards of care and supervision tools, quarterly or even monthly district supervisory visits are unlikely to be effective in improving service performance as a whole unless providers understand the importance of quality standards, and are ‘empowered’ to identify and solve performance gaps.

c) Tools for Supervision

Most supervision systems use structured checklists to guide supervisory visits. Most checklists require an element of direct observation in order to assess actual performance and provide feedback. This is particularly important for the supervision of clinical tasks. Checklists ensure consistency in supervisory activities, establish clear standards that are technically sound and consistent with national policies and guidelines, and tend to decrease the perceived subjectivity of supervisory encounters. However, checklists are not a panacea. Checklists can not be comprehensive, and will miss problems. Sometimes checklists become lengthy, overwhelming and impractical. Too much of a focus on lists can minimize the importance of talking to local staff and solving problems with them. Checklists are an essential tool, but need continuous improvement and revision. They are meant to contribute to an effective supervision system, but not to drive it.

Self-assessment or peer assessment methods have also been used in some places. While many biases can be introduced using these approaches, there is evidence that self or peer assessment based supervision systems can be effective in some settings.

Lessons from Experience

- Supervision systems can only support the production of a defined good or service. Without clear objectives, guidelines and standards of performance, supervisors cannot direct or focus their activities.

- Supervisors and providers must agree on the focus of the supervisory exercise which is usually a review of defined standards of clinical practice; compliance with administrative requirements; process issues related to the quality of service to the patients/clients; and stock of essential drugs and equipment.
- Facilitation and support will help providers internalize the standards and understand the definition of quality of care.
- Approaches linking supervision to quality improvement processes and on-site training demonstrate very positive results and should be encouraged.

Ultimately, the value of a supervision system rests with the quality of the supervisors and the work that they do. Good supervisors need to be carefully selected, trained, and supported in the field. Good supervisors need to share their experience, learn lessons from one another, improve their tools, get feedback from their own supervisors, and learn to manage information – qualitative and quantitative – for decisionmaking. The beliefs and work standards of supervisors reflect the core beliefs and work culture of a project.

Resource Management

Financial Management

Project financial management is required for accountability, to provide information, and to monitor and evaluate the efficiency of project activities.

Budgets provide a road map to planned expenditures, and allow the management of a project's cash flow. Many organizations organize budgets by item lines and categories (e.g. communication, supplies, travel, training, etc.). More advanced accounting systems will organize budgets by planned activities and distribute expenditures across each specific activity or group of interventions of a project. Proponents of "full-costing" favor this approach, which allows distribution of indirect project costs across the various activities of the project. This is particularly helpful when activities such as training have a high cost in terms of personnel time but are otherwise low in other direct costs. While a line item budget will identify the direct costs for the training (supplies, rental of conference room, per diems, etc.), a full costing approach will allocate its true cost (including staff and proportional use of overhead resources).

Accounting procedures must follow clear and recognized rules to ensure appropriate security and control of expenses. This is one field of management where relatively clear standards have been developed and can be regularly controlled through internal or external audit procedures. Developing a sense of accountability, operating with transparency, and demonstrating a rational use of resources are essential elements for capacity building.

Effective financial controls and accounting procedures are the basis that will allow a clear justification of expenses and appropriate monitoring of a project or organization's financial health. This ability to monitor and provide meaningful information is central to cost-analysis studies that can guide strategic management decisions. The first step is to define clear accounting procedures and to monitor expenses against a planned budget. As experience is gained, the level of financial analysis, reporting and use of data for strategic management will increase.

Human Resource Management

Much of human resource (HR) management is addressed by using effective communication techniques and supervision, as previously discussed. Quality management is also relevant to HR management because it focuses on team-based approaches. Some specific points of focus can be emphasized here.

An HR management plan starts with establishing a clear breakdown of work tasks and responsibilities. From these tasks and responsibilities, roles and positions are defined, and a profile of staff skills and competencies for each position can be developed.

Another critical element of an HR plan is the establishment of clear chain of command within the organization. A useful way to conceive of the chain of command is to think of it in terms of lines of communication, support and conflict resolution. Together with the 'internal client' focus advocated by quality approaches, thinking in these terms can help managers conceptualize the organizational structure of a project.

Assessing the performance of health workers or project staff is a traditional function of HR management. Modern thinking has moved away from a retrospective and static approach to a more prospective one. Performance management is now seen as a forward-looking, participatory approach to improving performance that helps the worker assess his/her own performance and set objectives of performance for the future, according to standards which he/she is able to understand and adhere to. This of course requires a clear definition of standards and norms of work (clinical performance and other tasks).

Information Management

The use of data (performance, financial, or programmatic) to guide decisions is central to the concept of management. We have addressed some of these elements above or in other sections, see M&E and capacity building sections.

Writing a Management Plan

Developing a management plan is a difficult task in the early phases of a project. Planning documents demonstrate a systematic approach to all of the key elements of management required for implementation of the proposed activities, including:

- basic management and supervision positions in the project;
- organizational structure and key partnering relationships;
- job description for key positions, with a basic functional assessment of staff time use;
- realistic scheduling of activities (e.g. through a Gantt chart);
- budgeting;
- plans for the development of M&E systems, MIS, supervision, and financial control activities;
- description of how information will be used for making decisions and taking corrective action; and
- methods that will be used for maintaining quality, and identifying and solving problems.

A written work plan can obviously not be expected to describe all of the elements that constitute sound management, nor describe all management activities. What a management plan can provide is the demonstration that the project is providing the proper framework for effective management to take

place, and that rational conditions of control, direction and support are in place, and are consistent with time and budgetary constraints.

Logistics

Logistics includes all of the supply management activities involved in making a product and getting it to the client, beginning with the flow of raw materials from the initial source and ending with the delivery of finished goods to an end user. In addition to the flow of products, a *logistics system* also incorporates the related flow of information that both controls and records the movement of these products.

Central to a successful logistics system is a focus on customer service that goes beyond the storage and handling of goods. A logistics system strives to provide excellent customer service by ensuring the quality of three basic elements: storage, transportation, and service delivery points. To provide effective customer service, a logistics system must deliver the six rights:

- the right goods
- delivered to the right place
- for the right cost
- in the right quantities
- at the right time
- in the right condition

Child Survival and Child Spacing Logistics Management

Logistics operations extend from “the suppliers’ supplier to the customer’s customer.” This is the supply chain. In a well-functioning supply chain, at every link, each unit should treat the next unit as a customer, while ensuring that products reach the ultimate customer, end user or client. Effective supply management is achieved when customers are the focal point of all logistics operations.

The six rights apply to child survival and health customers’ needs, including:

- a dependable supply of essential drugs or contraceptives or other essential products;
- quality supplies in good condition and ready to use;
- convenience (products available when and where they want them);
- affordable products.

Customer Focus

A well-functioning supply chain staff strives to anticipate and satisfy customers’ drug and supply needs. When developing a customer culture within a supply chain, it is essential to identify all the system’s customers and their respective needs and expectations. Supply chain managers, in addition to their primary customers, also have important intermediate customers, each with special needs and expectations:

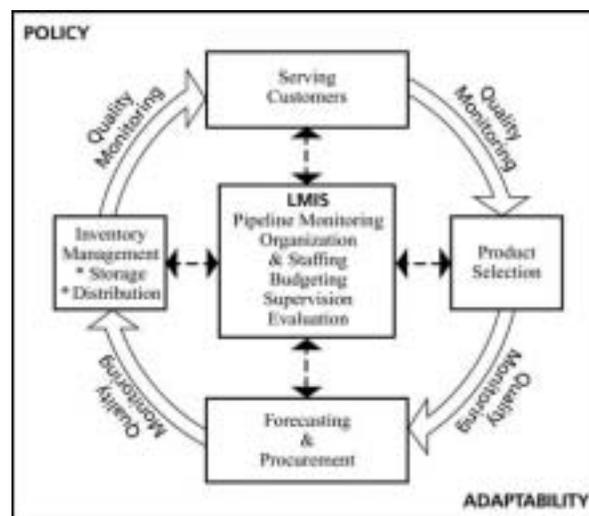
- Service providers (doctors, nurses, pharmacists, dispensers, community-based distributors, volunteer health workers, and others).
- Warehouses and stores in the distribution chain.
- Policymakers and senior program managers.
- International donors.

The Logistics Cycle for Child Survival and Child Spacing Products

The management of a logistics system includes a number of activities to support the six rights. Over many years, international logistics experts have developed a systematic approach to describe the activities of a logistics system—the logistics cycle. While other models exist, the logistics cycle is particularly appropriate in health logistics systems (see diagram below). Notice the circular shape of the system, and the interdependent nature of all the activities – demonstrating a cyclical model.

Serving Customers

Everyone who works in logistics must remember that he/she selects, procures, stores, and distributes products to meet customer needs. Data about customer behavior (rate of consumption, choices of products) feeds back into the cycle to inform decisions about product selection.



Product Selection

In any logistics system, products must be selected. In a health logistics system, product selection may be the responsibility of a pharmaceutical board, a physician's board, or another government-appointed group. Products are selected based on the board's knowledge of their programs client needs.

Several factors influence their decisions. The information gathered in the logistics cycle is one factor. For example, information about storage conditions or transportation may affect what products can be selected. In addition, the budget is often one of the greatest influences in product selection. Boards may choose generic drugs over name brands because they tend to be less expensive.

Forecasting and Procurement

After products are selected, the quantity required of each product must be determined and then purchased or procured. Estimating requirements involves knowing not only what is projected to be needed for a given period, but also what is already on hand or on order. If these data are not factored into forecasts and procurement plans, overloads and wastage due to expiration will result. Remember these three critical supply chain functions:

- *Accurate forecasting* of future consumption is the first step in ensuring the timely availability of products.
- *Procurement planning* is the process of specifying the timing and quantities of products needed based on the forecast, desired stock levels, and amounts already in stock.
- *Procurement or purchasing* is the identification of suitable sources of supply and the acquisition of commodities according to a procurement plan, as economically as possible, within established quality standards.

After acceptable forecasts are made and a procurement plan is specified, the program must obtain supplies from donors or purchase them from manufacturers. The procurement process is critical because contraceptives and other health commodities are expensive. Procurement managers must determine how scarce financial resources will be allocated, a process requiring transparent procedures and a trained staff.

Inventory Management—Storage and Distribution

After an item has been procured and received, it must be stored until the customer needs it. Almost all businesses store a quantity of stock for future customer needs. Determining how much stock should be stored is an important decision that should be made on the basis of data collected within the logistics management information system (LMIS).

In a well-managed logistics system, warehouses, stores, and transportation form a seamless, integrated distribution network to deliver quality contraceptives and health products to customers at the lowest possible cost. Distribution systems operate best when they have the fewest number of levels necessary to effectively supply all service delivery points. The number of levels in an organization's distribution system does not need to parallel the administrative structure.

Good storekeeping practices and *de-junking* (eliminating accumulated clutter in store) will increase usable space in a distribution network for little cost. Contracting distribution functions to private companies, especially transport, is a growing trend; it has the potential to reduce distribution costs, while simultaneously improving the availability of essential products.

LMIS: The Heart of Logistics

Information is at the heart of the logistics system. Without information, the logistics cycle would not be able to run smoothly and keep products available to customers. Managers use information to inform each part of the system about other elements at work in the system. For example, information about inventory levels and consumption must be gathered to ensure that a manager knows how much of a product to order.

Other activities are also at the heart of logistics and help drive the logistics cycle. These include *organization, staffing, budgeting, and supervision and evaluation*.

Organization and staffing are an important aspect of logistics management. A logistics system can work only if people place orders, move boxes, and provide goods to clients. For a logistics system to work properly, the six rights must be a top priority, and staff at all levels must be given the tools, information, and training they need to perform their respective roles in fulfilling the customer service mission of the supply chain. The *budget* is another critical element. Budgeting affects product selection, quantity of products procured, staff availability, and amount of storage space available.

Supervision and routine evaluation of the logistics system are needed to keep it running smoothly and help anticipate needed changes.

Quality Monitoring

Notice how quality monitoring appears between each element of the logistics cycle. This refers not only to the quality of the product, but also to the quality of the work:

- between product selection and forecasting.
- between procurement and storage.
- between inventory and serving customers.
- between serving customers and product selection.

Logistics Environment—Policy and Adaptability

In addition to the elements within the logistics cycle, two outside forces—policy and adaptability—have a strong influence on the logistics system. Policies, particularly government regulations and procedures affect all elements of the logistics system. Many governments have established policies about the selection of medical products, how items are procured (from condoms to telephones), when items are distributed, where and how items are stored, and the quantity of items customers receive (often called “dispensing protocols”). Logistics managers can influence these policies, but may not be able to change them.

Adaptability is the logistics system’s ability to successfully adapt to change—to obtain the necessary resources, either internally or externally, and to supply growing demand. Logistics managers often depend on a larger system, like the government, to provide inputs. Money is one of the most important inputs. For example, as demand increases, the logistics system needs more money to pay for fuel for extra deliveries, hiring new warehouse workers, and training clinic personnel. The government’s ability to meet these needs will have an impact on the logistics system.

When policy makers see and understand how the logistics system supports and contributes to the success of their health service programs, they are more likely to make sure the logistics system receives the human and financial resources it needs to do the job well. Remember: no product, no program.

3.d Behavior Change Interventions

Behavior change is essential to improving maternal, child, family, and community health. The selection and implementation of an appropriate set of behavior change interventions can help to directly improve a wide range of family care-giving and care-seeking practices, and enhance supportive environments for improved household health practices at community, institutional and policy level.



Essential Elements

- Adopt Approach
- Use Data
- Use multiple channels and methods

Individual, family and community health outcomes are influenced by many factors. A comprehensive approach to behavior change recognizes that individual behavior change does not result from improved knowledge alone, and cannot be promoted in isolation from the broader social context in which it occurs. A behavior change approach explores the full range of factors that must be addressed to effectively change behaviors at multiple levels. A standardized, step-by-step process is used to assess current behaviors and underlying factors, propose key behaviors for change, identify contributing factors, and work with individuals, families, communities, health systems, and policymakers to develop effective, feasible change interventions aimed explicitly at these factors to change behaviors.

This section briefly outlines **what** PVOs need to do to develop more effective behavior change interventions. More specific details and guidance on **how** to do it is available from the resource materials listed.

Steps for Incorporating a Behavior Change Approach into Program Design and Implementation

1. Develop broad BC goals and objectives that correspond with overall project health objectives.
2. Review existing literature and identify information gaps.
3. Pre-implementation Research (KABP Study, Behavior Change Research, Community Assessment).
4. Analyze research results, identify emphasis behaviors and types of interventions required at each level.
5. Formulate comprehensive multi-level behavior change strategy, including communication component, links to training, improved services, products, policy change etc.
6. Produce, pre-test and finalize draft communication materials, training designs, improved services/products as indicated by research.
7. Work with communities: identify, negotiate, & implement activities to change behaviors/address barriers.
8. Mobilize all levels to design/implement advocacy strategy to support policy changes as indicated by research.
9. Launch/ implement communication interventions, conduct training, introduce and promote improved services/product(s), policy changes.
10. Monitor and refine interventions throughout implementation phase, evaluate and report.

The behavior change approach is a process for planning and implementing a comprehensive, strategic set of interventions and activities that focus on changing behaviors at multiple levels to achieve a health objective.

When taking a comprehensive behavior change approach, program planners address four key decisions:

- **Whose behavior** needs to change to bring about the desired health outcomes? (mother's; pharmacist's; hospital administrator's; neighbor's?) Who is your audience?
- **What do you want to help them to do?** Is it feasible? Is it effective?
- **Why aren't they doing it now?** How can you best influence and support those behaviors? What barriers exist? Why are some people currently doing it and others not? What makes the difference?
- **What activities address those factors** that you've identified as most influential in changing the behavior? Do you need **materials** to support those activities? **Products?**

Moving Towards a Behavioral Approach

The performance indicators for PVO projects are stated as health objectives - to improve home care and case management of childhood diarrhea, to increase the proportion of pregnant women assisted by a skilled birth attendant, or to reduce mother-to-child transmission of HIV. The initial step in applying a behavior change approach is to conceptualize these health objectives *in behavioral terms and develop a set of behavior change objectives for each health outcome.*

The broad categories of behaviors to improve maternal and child health include:

- healthy preventive/promotive household, community and institutional behaviors,
- timely, appropriate family-provided care at household level
- early household recognition of danger signs, timely care-seeking, decision-making and use of appropriate health services in the community,
- adherence to treatment recommendations/ referral after receiving care from health worker, and provision of timely, appropriate, good quality community-level health care, counseling, education, and referral by traditional and modern care providers.

Specific examples are found below:

Health objective	Refocused in behavioral terms
Improve home care and case management of childhood diarrhea	<ul style="list-style-type: none"> • Wash hands of child, caretakers, and food preparers, with soap, before food preparation or consumption, and after using the toilet. • Continue feeding and increase fluids during diarrheal illness. • If breastfeeding, increase the frequency of feedings. • Mix and administer oral rehydration solution, or appropriate home-available fluids. • Seek appropriate care from a trained health worker when the child suffers from certain specific symptoms.
Increase the percentage of mothers exclusively breastfeeding their babies	<ul style="list-style-type: none"> • Initiate skin to skin immediately and initiate breastfeeding within one hour of birth • Breastfeed exclusively for the first six months. This means no other food or liquid is given to the baby. • Practice frequent, on-demand breastfeeding, day and night.

After “translating” health objectives into behavioral terms, the most critical step in a behavior change approach is identifying the few key factors that most influence the target behavior for our particular audience. The identification of how best to influence target behaviors is the step most often skipped by PVO program planners, and takes away from the effectiveness of program activities.

Collecting Information for Planning Behavior Change Strategies: Formative Research

To make the four planning decisions essential to any behavior change approach, information is needed. Sometimes relevant information has already been collected and will be available. New research is often required to give a more complete picture of our behavior of interest. Research that helps to plan or form an intervention is commonly referred to as formative research. It is also known as intervention research.

Formative research will help to:

- give a clear sense of priority audiences and meaningful audience segments;
- identify feasible and effective behaviors to promote;
- clearly specify which factors influence those behaviors and at what levels to focus program activities – individual, community, health system or other institution and/or policy; and
- explore preferred channels of communication.

The contributing individual, family, community, health system, and policy factors that influence healthy outcomes should be assessed for each behavior and audience BEFORE identifying tactics or planning activities. Once the most influential factors are identified, then planners can identify activities at the various levels (individual, community, health system and/or policy) that best address the factors. Usually, a behavior change approach will require a comprehensive plan that works at several levels.

Table 4: Levels of Behavior Change Intervention

Level of Influence	Desired Intermediate Outcome	Required Areas of Assessment	Potential BC Interventions
Individual	improved household caregiving; increased knowledge, altered attitudes and beliefs; modified behaviors; improved self-efficacy; improved links to household and community resources	Knowledge, Predisposing, Reinforcing, enabling factors (PRECEDE Model); perception of risks and consequences; perceived severity; personal self-efficacy; personal networks; resource distribution and access	Communication such as: <ul style="list-style-type: none"> • Face-to-face, or group training and counseling • Mass media, community media • Events • Centralized information and referral • Distribution, promotion or subsidizing of services • Community mobilization
family/ household	improved household caregiving; supportive “household policy”; improved links to community resources	Sources of social identity, role models; sources of social support and social pressure; perceived and actual family hierarchy and social networks; perceived social norms; resource distribution and access	<ul style="list-style-type: none"> • Community mobilization skills-building; promote critical thinking; • Create enabling household environments; strengthen existing networks • Negotiated behaviors and interventions

Level of Influence	Desired Intermediate Outcome	Required Areas of Assessment	Potential BC Interventions
Community (friends/peers, influentials, groups/orgs, businesses, public/private sector)	change social norms; increase sense of community and shared responsibility; increased social support; increased access and improved distribution of resources	community social hierarchy and networks; "assets"; social norms; sources of social support/social pressure	<ul style="list-style-type: none"> Negotiated behaviors and interventions; enabling community environment; Strengthen existing and create new social networks; develop community capacity to change;
institutional systems (health and non-health) health care providers (modern and traditional)	improved provider skills and attitudes; improved client-provider relationships; bridges between traditional and modern practitioners; enhanced image of health services; improved products/services;	current counseling attitudes, skill and practice; quality of care provided; product availability and acceptability; organizational and management factors	<ul style="list-style-type: none"> IPCC training; behavior change skills training; motivation and team building activities; management training' policy and advocacy; New systems (supply, supervision, etc.)
policy (health planners, policymakers)	restructured priorities; supportive policy environment; improved product development, pricing and distribution; reallocation of resources	existing priorities and policies, and impact on recommended behaviors; current products availability, acceptability, cost; current resource allocation	<ul style="list-style-type: none"> Advocacy to inform and promote program; negotiation to reprioritize, reorganize systems, reallocate resources

Conducting Assessments for Planning BCI Strategies: Methods That Answer Key Questions

Key factors influencing health behaviors can only be determined by analyzing available data and/or collecting new information. Some of these data are already available, such as national Demographic and Health Survey (DHS) data. PVO Child Survival Projects already conduct a baseline KABP survey as part of initial project activities. This KABP survey provides basic information on current knowledge, attitudes, behaviors and practices at household level for many of the **emphasis behaviors** that correspond to each of the PVO project health objectives. A thorough review of available literature supplements the baseline information provided by the KABP Study, helps to clarify remaining information gaps, and guides development of questions for additional research to address the gaps.

A behavior change approach broadens the types, scope, and methods of information collection needed to **change** those behaviors. (Table 2) It focuses on exploring factors that influence behavior change at multiple levels - among individuals, family and community influentials, health care providers, and policymakers, to devise a maximally effective behavior change strategy.

A growing number of innovative tools are available to help ensure that methods are appropriate to the research questions asked, that the questions asked are appropriate to inform the proposed behavior change, and that proposed interventions respond to the complexities of multilevel interventions.

Several types of assessments have been suggested as part of formative research to guide behavior change interventions. A behavior change approach integrates these sources of information to determine convincing ways to reinforce enabling factors, address barriers, overcome resistances and effectively motivate desired behavior changes. Programmers should pick and choose among the available methods

depending upon information needs and available resources. It is not necessary to conduct research in each category if not necessary.

Assessments include:

- **health risk assessments** - to determine the relative priority (in terms of magnitude and severity) of health problems in a community and among various segments; to guide prioritization of project health objectives; this assessment will yield the “perceived” assessment of risk and needs to be combined with the “epidemiological” assessment of risk, which may be quite different;
- **behavioral or audience assessments** - to identify key behaviors and the most influential factors associated with them; to identify and profile audience segments and needed levels of intervention; and assess preferences for various kinds of intervention;
- **“environmental” assessments** - includes assessments of community, health systems and policy to understand the context of health behaviors. This research may benefit from being participatory in identifying community preferences and perceptions; systems and/or policy issues affecting health behaviors.
- **pretests and trials of behaviors** - to assess the feasibility and effectiveness of proposed behaviors. Some methods will be more participatory than others, identifying strengths, assets and resources available among families and communities, allowing collaborative development of indigenous solutions.

1.	Who (which population segments) are most at risk by NOT practicing the behaviors?
2.	Do current behaviors closely approximate the recommended behaviors? Are they widely practiced?
3.	How is decisions made for routine health maintenance behaviors, household caregiving and careseeking outside the home? By whom? What “triggers” caregiving or care seeking? Where do they go for health care outside the home? Why? (from KABP Study)
4.	What is the sub-set of behaviors required to achieve the recommended behavior? (behavior sub-analysis)
5.	Who has influence on whether or not people practice the recommended behavior?
6.	What barriers do people themselves think exist to practicing the recommended behavior?
7.	How do they and those who influence them think those barriers could best be addressed?
8.	What other factors (beliefs, social norms, laws, resources) might also influence whether people practice the recommended behavior?
9.	Who is already practicing the recommended behavior? What motivated them to adopt that behavior? (positive deviants) Who is not practicing the recommended behavior? Why not? What makes the difference between the two groups?
10.	If people don’t think the recommended behavior is practical or achievable, what similar behavior would they be willing to try? (negotiation)

A behavior change approach is broader than a health communication or education approach.. By broadening the planning “lens” to a behavior change approach, communication and education become just one of several available strategies for changing behaviors. Sometimes information conveyed through education and communication will be critical to changing behaviors, but often other factors are also important, such as availability of products and services, national policies, or community support mechanisms. Focusing on the goal - improved behaviors - takes into consideration that both individual and group behavior change are more likely to take place within a supportive environment that results from interventions at multiple levels.

Types of Assessments	Examples of Research Methodologies
Health risk assessments	DHS Surveys; Other National surveys – nutrition surveys, coverage surveys; Surveillance data
Behavioral or audience assessments	KABP Surveys; Doer/Non-doer Analyses; Positive Deviant or Discovery Inquiries; Focus Groups (less effective for this purpose); In-depth interviews
Environmental Assessments	PRA or action research; Policy Environment Scores; Missed Opportunity Surveys; Focus Groups; Integrated Health Systems Assessment

Types of Assessments	Examples of Research Methodologies
Pretests or trials of behaviors	Trials of Improved Practices (TIPS); Observation Studies; HEARTH Model

A Program Example of Multilevel Behavior Change Interventions

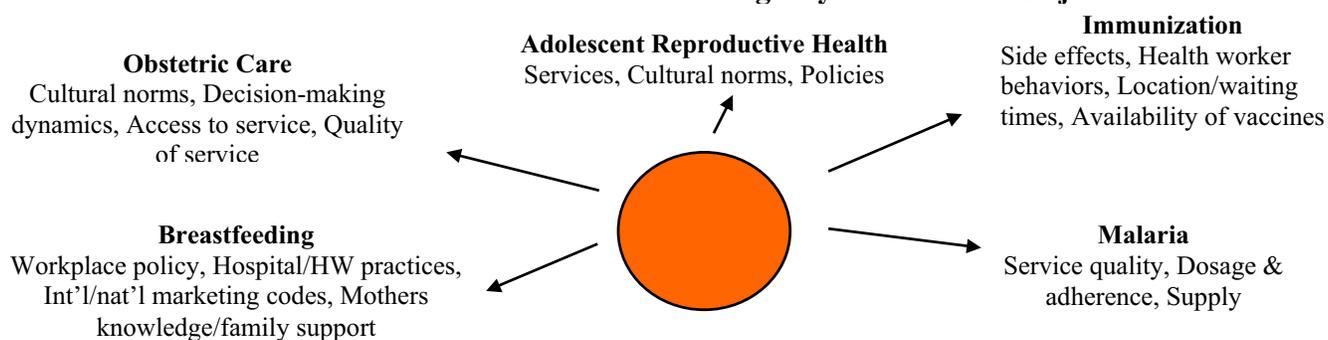
Lessons have been learned from programs that have been unable to improve household health practices, or to increase demand for and appropriate use of health services. For example, in a South East Asian country, program planners knew that maternal deaths were unacceptably high. A health communication strategy to increase knowledge about obstetric danger signs, a known contributing factor to delay in emergency care seeking, was implemented, with pregnant women as the primary audience. Local doctors were trained to upgrade emergency obstetric skills. After three years, very little change in use of services had occurred.

A behavior change approach was applied, and results of a broader range of intervention research were charted using a behavior change intervention matrix. Analysis showed that mother-in-laws were the ultimate household decision-makers regarding obstetric emergency care seeking, that families delayed care seeking because they were routinely required to purchase expensive essential supplies and medicines themselves, and that doctors were often unavailable when community midwives needed assistance.

Gradual increases in utilization were noted after a multilevel behavior change strategy was implemented that included all family and household members in education on obstetric danger signs; worked with communities to identify resources for producing and distributing “birth preparedness kits” containing essential obstetric supplies; and advocated for policy change to allow midwives to perform routine emergency care.

The chart below provides some examples of factors influencing several of the health emphasis behaviors. *This chart is illustrative and does not apply to all audiences in all contexts.* It shows the range of factors (individual and within the “enabling environment”) and audiences that need to be addressed to see changes in key health related behaviors.

1 Illustrative List of Factors Influencing Key PVO Health Objectives



The behavior change approach integrates findings from the four types of assessments described above to define priority behaviors for change, identify factors influencing these behaviors, define critical target audiences, and suggest a core set of behavior change interventions. Table 3 suggests a framework for charting and analyzing assessment results into a behavior change intervention matrix. This matrix helps to clearly identify a broad range of interventions that might be required to change behaviors directly as well as to create a supportive community and policy environment for change.

The BEHAVE Framework for Program Planning

Audience	Behavior	Key Factors	Interventions
<p><i>Who?</i> A specific target audience</p>	<p><i>What?</i> Do a specific action that protects has a positive health outcome</p>	<p><i>Factors</i> A few specific key factors that address barriers, enhance benefits, and are most influential to the target behavior</p>	<p><i>Interventions</i> Selected activities that address those key factors</p>
<p>In order to help: women pregnant for the first time and young mothers under 20</p>	<p>to: give colostrum starting within one hour of birth and continuing until “regular” milk comes in...</p>	<p>we will focus on: increasing knowledge about the benefits of colostrum, stressing it is sufficient nourishment for the newborn; changing attitudes about the need to “clean the stomach of the newborn” increasing the knowledge/attitude that colostrum is the “first vaccine” Changing health worker knowledge/attitudes about poor, malnourished mothers being able to provide sufficient infant nutrition through breast milk; Strengthening hospital and community center policies.</p>	<p>through: small group workshops; midwife talks stickers for immunization cards (the first vaccine!) promoting colostrum during prenatal visits assuring adherence to hospital policies through monitoring identifying “positive deviant” mothers (poor, malnourished mothers) who exclusively breastfeed and whose infants are thriving; build a community-health center showcase to demonstrate effective strategies.</p>

<p>Defining <i>who</i>: An audience segment should be as large a group as possible that will still react in a similar and desired way to a certain “stimulus”, in this case, the stimuli are program activities. Some criteria to consider include: relative risk potential impact on program objectives (how many?, how badly at risk? How likely to change) Feasibility (NGO access to audience, resources to reach/work with audience; community politics)</p>	<p>Determining <i>what</i>: Based on literature, research, TIPS or other behavioral trials. Determined by considering ideal behaviors and current practices, and negotiating with audiences to identify a feasible behavior that will improve health outcomes. Behavioral objectives must be: a) an action b) observable c) specific d) measurable e) feasible Feasible behaviors are determined by considering the: Ideal Behavior: Based on international guidelines and national policies <i>And comparing it to</i> Current Practices: Based on available EPI surveillance, DHS, other HH and community based data. Selected behaviors need to balance the ideal behavior with what is likely to be possible; and be grounded in existing practices.</p>	<p>Determining <i>factors</i>: Based on literature, research, TIPS or other behavioral trials, and perceived benefits and barriers to performing the behavior Factors may be; a) Interpersonal, b) Intrapersonal (between the individual and family, health workers, community members, others), c) health system (supplies of products, health center hours); or policy factors (health center policies, national guidelines, import policies) Common factors influencing behaviors: Demographics; Knowledge and attitudes of individual, family, health workers; Perceived risk; Self-efficacy; Culture and perceived social norms; Intentions; Access to Services and Products; Policy; Community organization and support; Actual Skills; Perceived consequences.</p>	<p>Selecting <i>interventions</i>: Interventions should be directly linked to key factor, address all levels identified as most influential in changing the behavior (individual, household, community, health service, other institutions, policy); should be “the right tool for the job”. (Refer to right tool worksheet) Broad categories of activities to address interpersonal, intrapersonal, health system and policy factors include: large or small group interventions (peer workshops, events, theater, fairs, etc.); One-on-one interventions (counseling and referral, outreach, etc.); Centralized Information and Referral; distribution, promotion or subsidizing of products or services (free distribution; price supports; more/ different outlets, brands); Community Mobilization; Mass Media and Small Media; Advocacy for policy change; Improved quality of care; Improved supervision.</p>
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The framework provides a rationale for expanding the range of behavior change activities beyond communication, and for linking and coordinating communication activities with training, health systems support, product and service improvements and policy changes that may not otherwise have been recognized as essential components of a behavior change strategy.

Strengthening Health Systems to Promote Change

Behavior change to increase demand for and utilization of health services is influenced by access factors and acceptability of services. Access factors include concrete barriers such as hours and location of services as well as a sense of “welcome” at the point of service. Service acceptability from a client perspective is often based on perceived quality, availability of drugs, health worker attitudes and client-provider interactions. Comprehensive strategies to change utilization behavior require interventions that address some or all of these factors.

For health service providers as well as individuals, knowledge alone does not change behavior. Training programs to improve technical skills and interpersonal counseling and communication (IPCC) skills alone will not likely result in sustained change in behavior or practice. Long term changes in performance of health service providers are more likely when training includes analytical skills, addresses underlying attitudes, values and cultural norms, includes behaviors that are feasible in the clinical setting, and gives health workers skills to manage organizational problems such as a lack of time or staff for counseling. In addition, on-going supervision of some type is likely to be important for sustaining changes in clinical behavior, see M&E section.

Behaviors identified for change at individual and community level should be systematically reflected in and linked to clinical protocols and training guidelines for health care providers. Motivational activities and team building initiatives help to build bridges between communities and health services, empower health service providers to recognize need for changes within the health system, and be more able to implement those changes. Dialogue between professional health service providers and community/traditional health workers, and between public and private sector providers supports effective institutional level behavior change.

Encouraging Behavior Change at Community Level

One of the fundamental principles of the behavior change approach is promoting behavior change in the context of social change. Community engagement, efficacy and empowerment are recognized as key to sustained behavior change. Often, it is necessary for programs to reexamine current approaches and rebalance strategies to better integrate community mobilization and advocacy activities with more conventional behavior change strategies such as health communication aimed at individual behavior change.

At community level, a behavior change approach focuses on activities that create and sustain an enabling environment for social change, build partnerships with communities, and develop interventions that come the community’s own assessment of their needs and priorities. Community-centered behavior change programs promote the empowerment of community partners, and encourage collaborative design and implementation of local programs. A community-oriented behavior change approach recognizes people and communities as agents for their own change, placing information within the community for dialogue, debate and collective action.

Rather than imposing predetermined behavior change activities, communities are assisted in identification of problems or goals, mobilizing resources and developing and implementing strategies to achieve their goals. Communities are offered a variety of tools to help identify their own problems, recognize barriers to necessary behavior change, find appropriate solutions, and mobilize necessary resources. An assets- based approach helps communities identify, strengthen and utilize resources and knowledge that exist within the community itself to support behavior change and improve health outcomes. Key to these approaches is ensuring that there is a balance between problems that are perceived as important by communities, and the public health problems that must be addressed to improve health based on local data.

3.e Quality Assurance

Quality assurance (QA) can be defined as all activities that contribute to defining, measuring, and improving the quality of health care. These activities can be performed as part of routine health care delivery and management, accreditation of facilities or organizations, or supervision of community volunteers or health-system workers. QA activities include efforts to improve performance of individuals who deliver health services, as well as the processes and systems of care.



Essential Elements

- Definitions
- Activities
- Support Functions

QA is most commonly done as part of process of management and supervision of large group of people engaged in health services, be they at the household, community, facility or organizational level.

All quality assurance efforts in health need to be aware of the potential impact of the other sectors that affect health such as environment, agriculture, education and public works. QA is also influenced by and has an influence on health sector reform initiatives such as decentralization, community-focused care, financing reform, or re-engineering. QA is not considered to be a vertical program, working independently. Rather, it becomes part of every technical and support intervention, as each defines expected performance, measures that performance, and takes action to continuously improve performance.

The Four Principles of QA

QA work is based on four principles. These principles serve as the foundation for QA, and reflect that QA is not just a set of activities, but also a fundamental set of beliefs and values that become a "way of doing things" in an organization.

- Client perspective and needs:* QA recognizes that health services exist to meet the health needs of clients. This principle emphasizes the importance of knowing who the clients are, while understanding and trying to meet their needs and reasonable expectations. Clients include those within the organization (often referred to as "internal" clients) who have needs and expectations from other colleagues to be able to do their work well, as well as external clients (the target population and other stakeholders). Note: The term "client" refers to the health services' target population, whether it is for curative, health education and promotion, rehabilitation or prevention services.
- Systems and processes:* QA recognizes that unclear, redundant, or incomplete systems or processes may be a source of problems in the delivery of quality care. Instead of blaming the people working in these systems for poor performance, QA activities involve people in the prevention, detection, and resolution of problems within processes or systems, to allow improvements in the quality of care.

- c. *Data-based decisions*: QA emphasizes the need to improve processes by understanding how they function. This principle promotes decision-making using accurate and timely data, rather than on assumptions. Understanding and using data also means understanding variation: variation may be a normal part of the process or an indicator of real change.
- d. *Teamwork*: QA focuses on participation and teamwork to solve problems and implement quality solutions. It recognizes that the impact of QA activities is most powerful when the participation, experience and knowledge of major participants and stakeholders is included.

Note: The quality management literature often includes a fifth principle - leadership. However, we have included leadership within the model itself. The QA model (institutionalization framework) is summarized in the figure below:



QA triangle: The points are: defining quality (**QD**), measuring quality (**QM**), and improving quality (**QI**).

Defining Quality

In order to develop a quality assurance process, quality must be defined. Quality will be defined differently depending on a several key parameters, and these are summarized below:

The Recipients of Care

- Different people in a health transaction may define quality differently.
- "Client" - receiver of care or service.
- Community.
- Providers (CHW, health system workers).
- Health system staff/ community managers.

For example, a client coming to an immunization program - the person getting the immunization or the caretaker of a child - might equate quality with any of the following; no pain; availability of the vaccine and needle available at the time they want to get the vaccine; and easy access to a site where they can get the vaccine. On the other hand, a community might say that the quality of an

immunization program is defined as having; all children of the target population immunized; no vaccine preventable disease present in the community; and easily accessible services. Providers often view quality in terms of technical accuracy; the right vaccine at the right time; one-use needles and syringes; and a functional cold chain. Managers want cost effectiveness, and to meet planned targets. None of these perspectives are exclusive of the others, although it is often uncommon for providers to be aware of views that are different from their own. When determining the level of quality present in a given exchange, it is important to realize that the parties need to agree on what quality is, before they can decide whether it is present or not.

Dimension of Quality Being Considered

When defining quality, a number of dimensions of care delivery may be important, and these include:

- a. Technical performance: The degree to which the tasks carried out by health workers (including volunteers) and facilities meet expectations of technical quality (i.e. comply with standards) – doing things right.
- b. Effectiveness of care: the degree to which desired results (outcomes) of care are achieved - doing the right thing.
- c. Efficiency of service delivery: The ratio of the outputs of services to the associated costs of producing those services.
- d. Safety: the degree to which the risks of injury, infection or other harmful side effects are minimized; considers both the recipient of care (person, community) and the person giving care.
- e. Access to services: The degree to which health care services are unrestricted by geographic, economic, social, organizational or linguistic barriers.
- f. Interpersonal relations: Trust, respect, confidentiality, courtesy, responsiveness, empathy, effective listening and communication between providers (including volunteers) and clients.
- g. Continuity of services: Delivery of care by the same health care provider throughout the course of care (when appropriate) and appropriate and timely referral and communication between providers, between community and health system.
- h. Physical infrastructure and comfort: The physical environment of care, whether in a home, community or facility - appearance, cleanliness, comfort, privacy and other aspects that are important to clients.
- i. Choice: When appropriate, client choice of provider, insurance plan, or treatment.

Providers tend to emphasize technical accuracy, clients are often believed to care about physical infrastructure and comfort, managers often focus on efficiency. In quality improvement in Niger, health center staff improved processes and reduced waiting time, thinking this would be a significant quality improvement, but found that mothers bringing their children to the health center did not agree - they wanted the time for visiting with each other.

Level of Quality Desired

The level of quality that is set as a target depends on a number of factors including baseline level of function, available resources, and time available.

Minimum- absolute lowest level of performance that is accepted. The disadvantage of this standard is the program will never achieve more if this is defined as "quality".

Optimal - ideal situation without regard to limits. The disadvantage of this standard is that it can be demoralizing, never reached and staff may stop trying to improve if they feel they cannot achieve the standard.

Maximum achievable - acknowledges resource limits and ideal, sets definition appropriate to the situation, needs to be dynamic (revised as necessary).

Part of the System Being Addressed

The definition of quality will also vary with the level of the program or system being addressed. For example, inputs, processes, outputs, outcomes and impact are all program levels that can be measured in different ways. The table below summarizes inputs, processes, outcomes for training community health workers in diarrhea case management and treatment.

	Input	Process	Outcome		
			Output	Effect	Impact
Training CHWs	Identified volunteers Training materials	Training session	Meet learning objectives in session	Increased numbers of CHWs	Increased case finding of under nourished children
Diarrhea Control Program	Trained CHWs Oral rehydration salts	Education sessions for mothers Correct assessment of diarrhea	Children with diarrhea identified Children treated with ORT	Mothers able to begin ORT appropriately without seeking health system assistance	Reduced morbidity and mortality
Drug Supply	ORS, antibiotics Pharmacist	Stock management	ORS/drugs available in health facilities	Diseases properly treated	Reduced morbidity and mortality

Activities of Quality Assurance

1. Define quality

- a. Most common way to define quality is to set standards.
 - Sources of standards - international, locally adapted, implicit, explicit.
 - Examples of types of standards - protocols, guidelines, specifications (IMCI is a standard case management protocol for the management of sick children).
 - Issues in setting and communicating standards.

Are standards Current? (according to local or international standards of practice);

Are standards pertinent? (are the "right" standards available - if malaria is the biggest killer, standards for malaria diagnosis and treatment should be available);

Do standards define quality in a useful way? (minimal, optimal, maximal);

Are standards available? (present in the "workplace" in a manner the worker can access and understand).

Are standards defined at the input, process or outcome level linked to each other? For processes to be implemented, inputs need to be specified; for outcomes to be achieved, process standards usually need to be met. Are impact standards specified if necessary?

Have standards been communicated? - do all volunteers / health system workers practice with the same standard; if not, how can this be done?

b. If standards are not available, or if there is no time to formally set standards, other methods to effectively "set" standards include: common training for all who deliver similar services, or implicit standards reinforced by supervisory practices.

c. Customer-defined quality - though clients may not know the most current technical information, they will give a definition of quality if they are asked – such as when care should be given, where, what medicines they will take, etc. It is important to talk to customers, identify their wants and needs, educate them about wants and needs that may be inappropriate (those that do not meet technically sound definitions of quality), and determine how the overall definition of quality is influenced by customer (individual, community, external, internal) perspectives. For example, if injections are considered to be the only appropriate treatment for malaria, then oral treatment by health workers may not be considered appropriate. If the public is aware that most malaria is resistant to chloroquine, they know the "standard" for care should be another drug. If providers insist on giving chloroquine it is an inappropriate standard both from both a client perspective and a technical one.

2. Measure Quality

a. Data required - intuition or impression may be a starting point, but even qualitative information can be expressed as data

b. Types of Measures

- Baselines
 - Before an intervention
 - To identify opportunities for improvement
- Monitoring
 - Routine data collection – HMIS or community based information system data, usually collected by health workers/community workers. Regular collection of the same data points over time allows tracking of progress. Data collection is usually linked with routine monthly or quarterly reporting;
 - Supervision-based data collection – supervisors use checklists to; observe health worker/volunteer performance, and facility supports; interview workers and clients; discuss issues. Using data for solving problems with health workers/community is a useful starting point for quality improvement;
 - Monitoring is usually at the input, process and output level, sometimes effect, rarely impact;
 - Monitoring requires clearly defined standards, so people know what they are expected to achieve; quality must be defined first.
- Evaluation
 - health facility surveys) using a sampling design; might include special studies. Data are usually impact and outcome measures at the household /community or health facility levels;

- Programmatic Evaluation - measures performance against an implementation plan and program goals. Program inputs, outputs, and outcomes might be measured.

QA recommends routine monitoring of important data by workers and their supervisors, with an emphasis on interpreting and acting on those data at the lowest level of analysis. Data may also be forwarded to higher levels for independent or aggregated review, but action is at the level of collection. To improve work, regular monitoring is more important than episodic evaluation.

3. Improve Quality

a. Sources for topics for beginning the QI process

- Monitoring / supervision results - data based information that serves as a baseline from which to measure improvement;
- Evaluation / baseline results - also data based, used to set priorities for interventions;
- Recently introduced / revised standards – new standards will define essential elements of practice and supports required to allow practice standards;
- "things you just know" – experience may provide key elements that need improvement. These elements should be included in a baseline assessment to ensure that they are included in the QA process;
- "boss" says “do it” – some key program elements are specified by supervisors, program managers, or national policies – some may be linked to health reform. Again these elements need to be included in baseline assessments.

b. Alternatives for Improving Quality

Many actions can result in improvements - formal steps need to be articulated to ensure interventions target the causes of poor performance. That which is observed, improves. Methodological approaches need to focus on specific tasks or program elements, so that interventions can be targeted.

The key QI steps are:

- Identify - what to work on, who will work on it;
- Analyze - the process / system in which the performance is occurring, baseline data, identify “root causes” of problems;
- Develop - hypothesize about what changes will address the root or obvious cause of the problem, including indicators that will be used to measure the improvement;
- Test and implement- test the hypothesized solution to see if improvements result. Develop implementation plans, monitor those plans, monitor the effect of the intervention, decide if the action is appropriate to cause sustained improvement, institutionalize the intervention if appropriate, re-monitor as prescribed.

Examples of Quality Assurance Approaches:

Rapid team problem solving approach: a health center and its community health workers routinely did outreach to villages to deliver tetanus toxoid injections to antenatal women. They tracked the number of women who received the injections, and calculated a coverage rate each quarter. When they noticed the rates had decreased for two quarters in a row, they decided to study the problem. A team of CHWs and center staff reviewed their current policies for administering tetanus toxoid, and discussed possible causes for the decline. They decided that several things could be the cause: fewer outreach visits were made than planned; the outreach workers sometimes forgot to give the injections; the injections were not always recorded properly; women seen in the static clinic sometimes did not get injections. The

team decided to do two things: remind all CHWs and clinic staff of the policies for tetanus toxoid administration, and the proper way to record injections. The next two quarters saw a return to the usual high levels of performance.

Systematic problem solving approach: CHWs noticed that many children treated for malaria with Fansidar had not improved after treatment. People in the community said that the drugs were not effective, but research done in the district showed little resistance to Fansidar. A team was formed at the health center, including CHWs, to investigate and make recommendations for ways improve treatment outcome. They used system modeling and flow chart analysis of the process of malaria diagnosis and treatment; and cause-effect analysis to identify probable reasons for the failure to improve. They suggested several possible causes, including: mothers not understanding how to give the medicine; families selling the drug; health workers prescribing the wrong drug; health workers dispensing the wrong drug. They designed small data collection activities to test each of these possible causes, and discovered that many mothers did not trust this new drug so they did not give full doses to their children. The team developed a standard set of messages about Fansidar and treating malaria that CHWs and clinic staff would use, and included this topic in a neighborhood health committee meeting. They monitored the number of women who could correctly state the way to use Fansidar using home visits and tracked the number of children who failed to improve after treatment diminished; after the intervention there was a reduction in treatment failures.

Individual decision making: a guard at a health center noticed used needles lying in the trash heap. He knew they should be buried, but no pit had been dug. He grabbed a shovel and covered the needles with dirt. This solved the immediate problem. However, he recognized that there needed to be practices that would prevent this from recurring, so brought it to the attention of the in-charge. The center staff could then work on a policy for correct needle disposal.

c. *Quality Design* Principles of design need to be applied when there is a need to substantially change the methods/systems required to provide services. The key steps in quality design include:

- Select the process to be designed;
- Identify clients, both external and internal;
- Identify and prioritize client needs and expectations;
- Define objectives of the process/system;
- Create flow chart of the main activity blocks of the process/system;
- Link needs with each activity block in the flow chart;
- Identify key features in the new design that respond to priority needs of client, linked with activity blocks;
- Write a description of the new design of process;
- Test design for robustness and reliability.;
- Plan, implement, and monitor new process/system:
 - Compare the old process to the new process
 - Describe human and material inputs needed for new design
 - Develop a communication (IEC) plan for new design
 - Develop an activity plan for implementation of new design

An example of the application of process steps to improve design: a district hospital formed a maternal care process improvement team, made up of the a physician who treats obstetric patients, a midwife, the sister-in-charge of the labor and maternity wards, a representative from the outpatient

care area who is involved in antenatal and post-partum care, and a community member. They routinely reviewed statistics about antenatal care coverage, deliveries, complications, and post-partum visits. They became concerned that the number of women who had post-partum exams was too low, and then used several methods to investigate the problem. One was to have members of the team determine what the practices and policies were for telling mothers to return for post-partum care (did standards exist for the staff to follow?) Another was to charter a team to pose possible causes of why mothers did not return for care, and to investigate those causes. They found that there were no common practices or formal policies for instructing mothers to return for post partum care. Standards and teaching aids, for use during both antenatal and delivery care, were developed. The problem solving team discovered mothers often did not know they should come back – and recommended that staff routinely counseled on when and why to return. They made no further recommendations for intervention. The process improvement team continued to look at the routine data, and noticed that although the counseling was improved, and mothers knew when they could return for care, the number of women seeking care was still too low. They formed another team with CHWs to find out from the women why they were not coming back. This team discovered that mothers were back working in the fields by 6 weeks post-partum, when the visits should occur. The PI team decided to changed the routine visits to 4 weeks post partum (contrary to WHO recommendations) and to mobilize the community to improve practices.

Support Functions for Quality Assurance

A QA system needs formal, ongoing processes for developing and maintaining the capacity of community members or staff to implement quality assurance activities, and disseminate QA information. In addition, a QA system needs to develop a method for rewarding quality.

Capacity Building: is needed to ensure that all staff possesses the knowledge and skills to carry out QA activities. Capacity building encompasses a range of activities that increase and maintain QA knowledge, skills, and ability: formal QA training, coaching and mentoring on the job, self and peer appraisals, performance improvement and supervisory activities.

Communication: is needed to disseminate information about QA activities to the community, health care providers, clients, and policy-makers. This function assures that the work carried out by QA teams is communicated to the wide audience of stakeholders for use in policy determination, advocacy for resources, as well as to promote peer learning among volunteers and health workers about successful QA activities implemented elsewhere. Successful communication support for QA includes:

- Recording improvements and changes, illustrated by data to show results that have been achieved, as well as the stories behind these results;
- Sharing what has been achieved and how it was done, both with the organization's staff, and the community it serves, as well as with others who could learn from it and become motivated to improve their own services;
- Using the results for advocating policy changes. When activities are well documented with supporting data, it is easier to convince decision-makers.

Rewarding Quality Work (incentives/ recognition): is needed to ensure that individuals and teams are motivated to strive for quality outcomes. These incentives are not necessarily monetary. Effective incentives include recognition and appreciation of work well done. Rewarding quality work (or efforts to improve quality) fosters a commitment to quality and motivation to strive for excellence. Providing

individual, group or even organizational rewards reinforces interest in QA endeavors, and assures that staff values are aligned with organizational values. Not only should an organization develop incentives (both material and intangible) that bolster workers' motivation to undertake QA activities and ultimately provide quality care, it should also examine what kind of disincentives or barriers to quality currently exist, and identify ways to remove them.

Structure: Successful QA systems require a clear delineation of roles, responsibilities and accountability. The specific organizational structure for implementing QA can vary greatly from one organization to another, and will evolve over time as the QA program matures. Hence, there is no "correct" or "best" structure; and a "QA unit" or fixed organizational structure may or may not be needed. However, to institutionalize QA several "structures" or mechanisms are needed for: oversight and direction; decision-making; providing support and/or technical expertise; implementing QA technical activities; and coordinating with other parts of the organization

Internal Enabling Environment: An internal environment conducive to initiating, expanding and sustaining QA is necessary to institutionalize QA. Such an enabling environment includes the following elements:

Written policies that support quality: clear, explicit and communicated directions/directives. From a QA perspective, enabling policies address access, cost, and quality of care for the population being served. Health sector reform initiatives outline goals and objectives for ensuring quality of care for the population. Sometimes local policies, formulated at a district level or even for an individual facility, are important.

Leadership: leaders who work to improve quality do the following; set priorities; model core values; promote a learning atmosphere; act on recommendations; advocate for supportive policy; and allocate resources for QA. There can be designated leaders with mandated authority, and informal leaders who "lead" by virtue of their personal strengths.

Core Values: organizational or community values that emphasize quality care and continuous improvement of services are articulated, promoted and practiced. To achieve optimal performance, organizational values and those held by the individuals and community working in or with the organization should be complementary and aligned. Core values do not operate independently within the enabling environment; they are directly connected to leadership, policy, and resources. Leaders often set the tone by modeling behaviors and by communicating goals. Policy is one way to establish and communicate that quality is a core value. The allocation of human and material resources to QA activities sends the message that quality is valuable to the organization. Examples of core values that the QAP experience has shown to be critical for institutionalizing QA include:

- Teamwork: Quality is a product of working together and valuing one's own work as well as the work of others;
- Trust and respect: One of Deming's principles was to "drive fear from the workplace." Trust and respect are critical for open and honest communication. This involves a commitment to openness, listening to each other and valuing other's opinions;
- Timely access to information: Poor decisions are often the result of lack of access to information. Sharing information within an organization provides people with the knowledge that they need to

make informed decisions about their work, and belief that information should be shared is important;

- Avoid blame: Blame is destructive. Concentrate instead on ways to correct any problems so that people work better. The problem is often in the system and not in a specific individual;
- Support learning and risk taking: Staff are encouraged to take risks to improve the work environment. This means that staff are trusted to know how their job fits into organizational values, and empowered to act and respond as needed;
- Involving the clients in improvement: A focus on clients means open dialogue with them about what they need, what the organization is trying to achieve and what can be done to make things better;
- Openness to change: If an organization wants to improve quality, it must be willing to change the ways it works, not only in terms of processes but also management and leadership styles.

Resources: sufficient human and material resources are needed to conduct, support, and maintain QA activities. Leaders can:

- Allow staff the time to participate in QA activities (such as training or special projects) as well as make QA part of their daily routine;
- Ensure that the materials needed for the QA activities are available. These might be as simple as paper and pencils, or include larger needs such as computers, books, and transportation;
- Train enough people to create a critical mass of human resources to support QA efforts.

Leaders and managers need to understand that quality assurance initiatives can increase program efficiency and effectiveness, and actually reduce costs.

3.f Monitoring and Evaluation

An essential component of any health program is monitoring and evaluation (M&E) - collecting and analyzing accurate and reliable health and nutrition information that can be used to improve program performance. M&E may include baseline assessments, setting program goals and objectives, monitoring progress towards program objectives by tracking indicators, and midterm and final evaluations. M&E provides the information that program managers and stakeholders need to determine whether they are achieving results and moving towards a health impact.



Essential Elements

- Definitions
- Data Sources
- Strategy/Objectives Development

What is monitoring? USAID defines (performance) monitoring as a process of collecting and analyzing data to measure the performance of a program, process, or activity against expected results. Monitoring is used to determine how well the program is being implemented at different levels, and at what cost. Monitoring systems inform managers whether activities are being conducted as planned, and whether key performance measures are changing. Program indicators are usually used to follow key aspects of performance. Monitoring systems often track inputs, outputs and outcome measures – all of which are required to achieve low level health impact. Performance monitoring is an ongoing, routine effort requiring data gathering, analysis, and reporting on results at periodic intervals.

Monitoring involves the regular, ongoing use of easy and inexpensive tools that help plot progress in meeting implementation schedules (inputs, activities, outputs), and reaching objectives. Monitoring data are used to chart a modified or improved course for the future. Evaluation takes a broader perspective to determine if the course is the best one, if the right things are being done, and then doing them better.

What is evaluation? Evaluations are systematic analytical efforts planned and conducted in response to specific management questions about performance of programs. Unlike performance monitoring, which is ongoing, evaluations are occasional – conducted when needed. Evaluations may focus on why results are or are not being achieved. Or they may address issues such as relevance, effectiveness, efficiency, impact, or sustainability. Often evaluations provide managers with lessons and recommendations for adjustments in program strategies or activities.

Links Between Monitoring and Evaluation

While evaluation and performance monitoring are distinct functions, they can be complementary. Data from monitoring may be useful for explaining indicators measured in evaluations. Performance monitoring information may trigger or flag unexpected gaps between actual and planned results that may need further exploration in evaluations.

Monitoring is closer to day-to-day activities, carried out routinely by local stakeholders, and related to details of implementation and short-term results. Periodic evaluation may involve others in addition to local stakeholders, and is more concerned with the measurement of progress towards health impacts,

rather than to the details of implementation. Outside experts are commonly included as either the team facilitator of a participatory evaluation process, or as an examiner or evaluator.

Monitoring and evaluation together produce information that can be used in a number of ways and at different levels. M&E is considered a means to both improve programs, and to track progress towards improving health outcomes and impacts.

What are Strategic Evaluations? Evaluating strategically means looking at several activities together to determine their overall contribution to a common result or objective. This may mean combining activities from several programs or projects.

Individual projects or programs may focus on evaluations to understand operational problems, or to assess results within a program area. Strategic evaluations look at the performance of entire groups of activities directed at a common result, analyze causal linkages, and try to determine the relative effectiveness of alternative activities and approaches.

For an organization, a strategic evaluation might look at a number of child survival or maternal and child health related projects, including food security, water and sanitation, and others to evaluate how they contribute differentially to results in terms of improved health of children under five years old.

As another example, several organizations working in a country or region might examine the impact of their diverse approaches on overall results – and use these data to determine strategies that are the most effective in a given geographical region. A health coalition, for example, might strategically evaluate approaches to changing behavior, such as age appropriate complementary feeding of young children.

Characteristics of a Strong M&E System

The two most important elements of a strong M&E system are: 1) involvement of key stakeholders in the design of the system (data collection, analysis, interpretation); and 2) use of data by stakeholders for program readjustment and redesign.

Collaborative design of monitoring and evaluation processes is important because:

- Participatory involvement of local partners and communities (developing results with objectives and indicators, collecting and analyzing baseline data, and developing a joint monitoring and evaluation plan) fosters local program ownership by stakeholders and increases interest in sustaining high caliber service delivery;
- Successful programs with documented achievements have developed clearly stated objectives, valid indicators, and a realistic method for measuring change over the life of the program by collaborating with all partners. The establishment of accurate baseline data is a critical element in tracking change;
- The participatory nature of the evaluation process encourages problem analysis and development of solutions by project staff and partners – and is therefore more likely to lead to effective and sustainable programs; and
- Good monitoring and evaluation systems allow the identification and support of promising practices or new approaches generated from local staff.

Focusing on the use of data for decision making is important because:

- The most successful programs conduct action planning based on the regular review of performance data. Health facility staff and communities are more likely to use data when they are empowered to be self-reliant and take responsibility for the quality of care they provide/receive.

Sources of Data for M&E

There are a number of options for collecting essential data for monitoring and evaluating programs in developing countries, and these will be briefly summarized.

Household and Community: Quantitative Data

Surveys: Structured surveys ask caretakers of young children key questions about their knowledge and practices (and sometimes take samples for laboratory analysis). This method requires a sampling strategy and a structured questionnaire that has been adapted for local use and translated into the local language. Adaptation for local use often requires the collection of data on local terms and beliefs. Pre-testing of survey instruments is needed. Key indicators are based on key behaviors for maternal and child health, see BCI section. The most frequently conducted survey methods are:

- **Demographic and Health Survey (DHS)**: Comprehensive large sample surveys that include information on maternal and child health, reproductive health, and mortality. A national sampling frame is usually used, although data can sometimes be disaggregated to the level of smaller administrative units such as districts. These surveys provide useful background data for identifying health priorities at the household level.
- **UNICEF-Multiple Indicator Survey (MICS)**: Comprehensive large sample surveys that include information on maternal and child health, reproductive health and mortality. Can be used for program planning.
- **30-Cluster Survey (WHO CDD/ARI/Breastfeeding Survey/WHO EPI Coverage Survey/PVO KPC Survey)**: The 30-cluster methodology is often used with reasonable precision by PVOs to obtain information in a project area. Survey instruments collect data on household knowledge and practices for key maternal and child health behaviors. Health behaviors are used as program outcome measures – this method is often used to collect baseline and follow-up data.

Rapid Catch: The CORE Group Monitoring and Evaluation Working Group (MEWG) strongly suggests that organizations include all the Rapid CATCH (Core Assessment Tool on Child Health) questions in their population-level baseline survey. The Rapid CATCH contains 26 questions from the KPC2000+ modules that are considered important measures of child health. The Rapid CATCH has an accompanying Tabulation Plan, which lists priority child health indicators and provides instructions on calculating these indicators. The CORE MEWG strongly suggests that all child survival projects report on these core indicators, which provide critical information on household behaviors and care-seeking patterns that affect the health and survival of children worldwide.

Data from the Rapid CATCH can be used by implementing PVOs and their local partners to inform (MOH, USAID Mission, NGOs, etc.) planning, monitoring, and evaluation activities; 2. To provide a

basis for comparability between projects within a given country, as well as across countries; 3. And to advocate at both the national and international levels for child health resources.

- **Lot Quality Assurance Sampling (LQAS):** LQAS uses very small samples to determine whether health behaviors are reaching pre-determined standards. This approach is used in some settings for monitoring progress over time. The survey instruments are often the same as those used for larger sample surveys – they measure key household behaviors.
- **Census-based Household Information Systems:** In some settings it may be possible to track all households in a community using regular visits by trained workers. This system allows data on vital events (births, deaths, pregnancies, episodes of illness) to be gathered, and also allows tracking of household knowledge and practices – and the collection of health indicator data. If regular visits are complete and sustained, then an accurate picture of the health status of a population can be obtained (since sampling is not required). When establishing census-based systems, strategies for local use of data for planning purposes need to be developed, and strategies for sustaining household visits over time need to be elaborated upon.

Household and Community: Qualitative Data

Qualitative data are usually not used for monitoring and evaluating progress over time. These data are most useful for identifying health priorities and barriers to health practices; identifying local perceptions and beliefs about illness and the prevention and treatment of illness; and identifying local terms for illness. These data are important for developing program strategies and for adapting M&E instruments, see BCI section.

Health Facility: Quantitative Data

Health Facility Surveys: (WHO integrated HFS, BASICS integrated HFS, CORE adapted and integrated HFS) These survey methods usually focus on outpatient services at first-level and referral facilities. Hospital-based care is not included. Facilities in the project area are sampled. Instruments need to be adapted, translated and pre-tested. Measures of health worker clinical performance for the management of key child health problems (ARI, diarrhea, malaria, measles, and nutrition) are collected (in the areas of assessment, classification, treatment and counseling). Direct observations of practice are required, as well as exit interviews with caretakers of young children when they leave facilities. Health worker performance outcome measures are important measures of quality of care, and can be used to monitor improvements in clinical practice.

Health facility system performance indicators are also collected by health facility assessments, and include the availability of essential drugs, vaccines, supplies and equipment; the availability of vehicles; the availability of health education materials; and the infrastructure of the facility. All are important measures of quality of care.

IMCI: A set of core health facility indicators for quality-of-care has been developed by the interagency working group on IMCI coordinated by WHO. These indicators have been selected to be valid, reliable, programmatically important, sensitive enough to demonstrate change, and measurable.

Supervisory-based Data Collection: This method is most often used to collect monitoring data, to provide feedback to staff, and to engage these staff in solving problems locally. Structured checklists

that include an observation of clinical practice are usually used. Instruments, methods and indicators are similar to those used for health facility assessments. Supervisory methods may allow a complete census of facilities in project areas, and therefore are an accurate measure of performance. This approach can also be used to observe the practices of community-based health workers.

Routine Health Information System: These data are collected by facility-based staff and recorded on standard reporting forms that are sent to higher levels in the system where they are aggregated. Data are most often service statistics such as the number of cases seen by category; number of deaths at the facility; number of pregnancies and births; number of vaccinations given, and the estimates of coverage using local population data; and the number of outreach visits conducted. These data may all be useful for monitoring or evaluating elements of program performance. The advantage of this method is that it uses routine systems and does not require additional resources. These data do not present any information on health worker performance – a critical element of quality of care.

Self-Assessment Methods and Peer-Assessment Methods: Tools have been developed for self and peer assessments of quality of care at the health facility level (COPE methods). The advantage of these approaches is that the cost and logistical difficulties of getting surveyors or supervisors to facilities is eliminated. While these methods are very useful in engaging local staff in the process of identifying and solving their own problems, they are not considered valid or reliable enough for the purpose of program evaluation. However, they can play an important role in program monitoring.

Health Facility: Qualitative Data

Qualitative data at the health facility level are not usually used for monitoring and evaluation. Qualitative data are important for identifying perceptions of clients and health staff that may influence the delivery of care; identifying problems with care delivery, and identifying solutions to these problems; defining quality care for the local population based on cultural and ethnic norms; investigating barriers to compliance with medications; identifying barriers to referral of sick children; and reviewing and improving counseling behaviors by health workers.

Health System: Quantitative Data

Health system M&E usually measures program inputs and outputs – the elements required to allow program outcomes to be achieved. Systems are essential supports for program activities, and without them activities can not be implemented.

Program reviews: Program reviews are a systematic review of key program elements using a structured approach. Evaluations are conducted using several methods including reviewing routine documentation and reports; interviews with key informants; and structured checklists. Trained staff are needed to conduct reviews, and visits need to be made to each level. Program reviews can focus at all levels of a system (national, provincial, district, sub-district, facility, community) or at single components (district-level). Program reviews might include reviews of routine surveillance data; program plans and financial records; training records and lists of staff trained; the number of staff in facilities or communities; the availability of essential drugs and supplies; or the regularity of supervision activities. Program reviews can also include activities at the community level such as the availability of trained community health workers; the regularity of outreach visits; the regularity of health education activities; and the frequency with which health planning committees meet. Several elements of support systems can be quantified and tracked over time (such as the proportion of

facilities with trained staff; the proportion of districts with child health plans; and the proportion of the population in a community with access to a trained community health worker).

Routine Surveillance: Routine reporting from health facilities and districts may include data that can be used to track program performance. Data might include training conducted; population or community coverage by trained staff; supervisory visits conducted; and drugs and vaccines procured and delivered. All measures can be quantified.

Health System: Qualitative Data

Qualitative data are not usually used for monitoring or evaluating health system performance. Qualitative data are critical, however, to identifying failures in various health system components; the possible reasons for health system failures; and possible strategies for improving strategies in the local setting.

Some indicators have descriptive or qualitative elements. For example, in the area of management practices, a decision about new functions or adherence to standards entails an element of judgment. Qualitative information can often be transformed into a quantitative rating scale against which targets can be set, annex reference: TIPS # 8.

Developing an M&E Strategy

A monitoring and evaluation strategy needs to be developed in congruence with other program plans, and the key steps in strategy development mentioned above and in the annex should be consulted.

Review of Existing Data and Exploratory Data Collection

Review of Existing Data: When developing project plans, it is critical that existing information be reviewed. Useful data might include:

- Quantitative data from national household surveys such as the DHS or UNICEF's MICS. These provide national and sometimes regional child health data units;
- Quantitative data from health facility surveys;
- Quantitative data from special studies and operations research;
- Qualitative data from formative research, ethnographic or anthropological studies;
- Data from routine health surveillance systems, including morbidity and mortality data; and
- Data from other projects or organizations working in the same geographic areas.

Existing data can be used to identify the most important health problems; identify areas that have the greatest public health need; identify the key health behaviors that will be targeted by the project – at all levels; provide information on local perceptions, beliefs and practices; and demonstrate interventions that have been successful in the past.

Exploratory Data Collection: Once the site and local partners are identified, the priority threats to child health in the program area can be explored using key informant interviews and service delivery statistics from an HIS. This process is informal, focused on information gathering, and participatory. As a part of this process, communities and other partners can be consulted to help identify the most important technical interventions to consider in the project areas.

Defining Goals, Objectives and Indicators

A critical element of developing a monitoring and evaluation strategy is the development of program goals, objectives, indicators (for each objective), and major activities planned for achieving each objective. These need to be developed in close collaboration with local partners, health staff and communities. Objectives need to focus on the public health needs of the population, be feasible in the local setting with the available time and resources, and be recognized local priorities. Each of these measurement levels will be briefly discussed.

Goals

A goal is a statement of the long-term aim of the project. While the complete fulfillment of a goal may not be possible or verifiable within the life span of the project, the achievement of the project's more specific objectives should contribute to the realization of the goal.

Objectives

An objective is a statement of what the program plans to achieve during the life of the project. This achievement is the highest level result that a program can materially effect with its efforts. Objectives should be clear, precise, objectively measurable, and plausibly linked to the program goal. Objectives can be stated in terms of changed individual behavior (e.g., increase in percent of mothers who recognize danger signs and seek care for pneumonia), or a change in an organization's behavior (e.g. ministry of health capacity to deliver prenatal services increased). Capacity building objectives at different levels may be linked in the chain of results.

Organizations are encouraged to develop a concise, manageable set of objectives. This concise set of objectives should reflect the key changes that the project aims to bring about in systems (managerial/organizational; supervisory; logistical; and training), facility performance (quality of preventive and curative services provided to young children), and in the adoption of key health behaviors in the home and community (home case management, and care seeking for preventive and curative services).

Indicators

Indicators are used to describe how well a program is achieving its objectives. Indicators need to be:

- Valid (an accurate measure of a behavior, practice or task);
- Reliable (consistently measurable, in the same way, by different observers);
- Measurable (quantifiable using available tools and methods);
- Programmatically important (to be linked to a public health impact, or to achieving the objectives that are needed in order to have a public health impact); and
- Easy to interpret (it is clear what they mean in terms of individual behavior or practice).

When considering indicators, priority should be given to those measuring as close to the top of the following list: impact, effectiveness, quality, coverage, utilization, inputs, access, availability. If the top levels are ok, less attention or resources are needed to assess levels below

In the area of child health, a number of key indicators have been developed and tested to meet the above criteria at the household, community, facility and systems levels. Most of these indicators are

measurable using the available tools and methods. A summary of key indicators for integrated child health at the facility and community levels is available from the interagency working group on IMCI, coordinated by WHO. These indicators are consistent with indicators measured in the DHS surveys and in the UNICEF MICS survey. An example matrix for the presentation of goals, objectives and indicators is presented below.

Example of Matrix to Display Program Goals, Objectives and Indicators

Goal: _____

Objectives	Indicators	Measurement Method	Major Planned Activities
* Objective 1	* indicator * indicator	* measurement method	* activity * activity
* Objective 2	* indicator * indicator	* measurement method	* activity * activity
* Objective 3	* indicator * indicator	* measurement method	* activity * activity

(**Note:** The measurement method should identify the source of the data. (e.g. initial and final KPC2000+/Rapid CATCH Survey using a 30 cluster sampling design). The details of data collection can be further expanded in a monitoring and evaluation plan. Activities support the achievement of the objective. These include inputs and processes carried out by the program.)

Collection of Baseline Data

Baseline assessments are used to assess the health status and practices of focus communities, to determine the quality of care provided, and the quality of systems in place to support health activities. These assessments are used to design strategies and interventions, improve existing health activities, and to set final objectives. In addition, baseline assessments establish measures of key indicators so that progress over time can be measured.

The usual methods used at each level are summarized in the previous section. Types of data collected include local knowledge and practices of individuals and communities; quality, coverage, and needs of existing health facility/worker services; health system elements; and local partner capability. Qualitative data are used to identify additional survey questions and to modify existing questions to make them appropriate to the local situation. Certain topics are better explored using qualitative techniques rather than closed-ended questions. The CORE KPC modules include suggested qualitative research questions.

Sampling of the population may be carried out to provide data representative of program sub-units such as communities or supervision areas in addition to estimates for the entire program area, see the methodology and sampling module of the KPC 2000+.

The majority of programs are planned with local partners, and most programs devote resources to building the capacity of these partner organizations. Institutional assessments of partner organizations

is best done in collaboration between the PVO and the partner by jointly implementing the assessments and then developing objectives to measure capacity building. The assessment can provide a baseline for institutional change, and can form the basis for a strategy/plan for capacity building and sustainability. The institutional assessment and capacity building strategy can be linked to a plan for sustainability, see capacity building and sustainability sections.

Developing an M&E Plan

Once existing data have been reviewed, and key baseline assessments have been conducted, program staff and partners are in a position to finalize a plan for monitoring and evaluating program activities. Clearly articulated goals, objectives and indicators form the foundation of this plan, which specifies the actions to be taken for collecting and using data to monitor program progress. The plan provides information in the following areas:

- 1) Goals, objectives and indicators;
- 2) Definitions of each indicator;
- 3) Source, method, frequency and schedule of data collection;
- 4) Groups or individuals responsible for data collection; and
- 5) A description of how data will be analyzed, reported, reviewed, and used to inform program management.

Previously in the DIP Guidelines, the monitoring and evaluation plan was referred to as the Health Management Information System (HMIS).

The M&E plan should also specify program targets. A final target is the planned value of a performance indicator at the end of the program. In addition to the end target, it is often useful to set mid-term targets or annual benchmarks to assess how the project is progressing.

Other Elements of M&E Planning

M&E Capacity Building: M&E capacity building with local staff and partners is important for providing opportunities to strengthen M&E skills. These include baseline data collection; routine data collection activities; improved use of routine health information system data; and analysis and use of data for planning. Strategies to improve the capacity of local partners and PVO staff can be developed. If a participatory approach is adopted to strengthen M&E capacity of stakeholders, sufficient time needs to be budgeted to allow experiential training as a part of routine activities.

Objectives in this area may include piloting promising practices and innovative approaches or carrying out operations research with the intention of providing the groundwork for future replication or scale-up activities. At the organizational level, objectives may relate to sharing promising practices and lessons learned, or using information from multiple programs for strategic evaluations of current programs and improved planning for future programs.

Operations Research (OR): Small-scale, field-based OR is sometimes needed to answer key programmatic questions. OR is the process of identifying and solving problems. OR usually looks at questions that have direct relevance to improving the health of women and children in communities and households – in general these questions need to be programmatically relevant, and possible to

change. OR employs many methodologies in a process that includes five basic steps: (1) problem identification and diagnosis; (2) strategy selection; (3) strategy experimentation and evaluation; (4) information dissemination; and (5) information utilization.

Mid Term Evaluation (MTE) is a formative evaluation serving as a way to assess how project activities are progressing, and to reorient activities and change project targets, if necessary. It is often useful to involve all stakeholders in mid term evaluations to help sustain partnerships and encourage local ownership. Methods include program reviews; repeat baseline assessments; and use of quantitative data collected through routine monitoring systems. The mid term evaluation usually occurs after the first two years of program implementation, and also provides an opportunity for rethinking the phasing out and sustainability of key program activities.

The Final Evaluation (FE) is an opportunity to assess whether the project met its goals and objectives, to assess the effectiveness of implementation strategies, to document lessons learned, and in some cases, to contribute to the design of a cost extension for the project.

It is useful to articulate program results by using a complete array of M&E tools (including community level assessment information, health facility delivery statistics, and project management indicators and benchmarks). The use of multiple indicators to triangulate actual trends and achievements, and describe results strengthens final program reports.

Post-Project Evaluations may also be included in M&E plans. Some projects design M&E systems that are maintained by local partners and communities, and that continue to systematically report on service delivery and population level health outcomes after the project has finished. Organizations may periodically review these data to carry out additional reporting on sustainability, or undertake separate evaluations of service delivery and household health behaviors several years after a project has ended.

Documenting and Sharing Lessons Learned is an important outcome of child survival programs to facilitate strategic evaluation of approaches, and improved cost effectiveness of future programming. This program encourages the generous sharing of documents and lessons with the PVO community at large, the CORE Group, CSTS, and BHR/PVC. Only by learning from our mistakes and leveraging our successes can we capitalize on results and further child survival.

4 Section B



Technical Intervention Areas

- **Child Spacing and Reproductive Health**
- **Maternal and Newborn Care**
- **Nutrition and Micronutrients**
- **Immunization**
- **Integrated Management of Childhood Illness**
- **Acute Respiratory Infections**
- **Control of Diarrheal Disease**
- **Malaria**
- **STI/HIV/AIDS**

4.a Family Planning and reproductive Health[^]

What is Family Planning/Reproductive Health?

Family Planning/Reproductive Health (FP/RH) is a key component of basic health services because it benefits the health and well-being of women, children, families, and their communities. USAID promotes the ability of couples and individuals to determine freely and responsibly the **number** and **spacing** of their children by maximizing access to and improving the quality of FP/RH information and services. Enabling couples to determine whether, when and how often to have children is vital to safe motherhood and child health. By limiting births, preventing closely spaced births or births to very young or old mothers, infant, child and maternal mortality can be reduced.



Essential Elements

- Program Planning
- Methods
- Informed Choice

The current 2002 Child Survival and Health Grants Program (CSHGP) now includes FP/RH funds which allow programs to address specific FP/RH interventions (including child spacing and limiting), if appropriate to a country context. A comprehensive FP/RH program should aim to create the necessary conditions for women and men to have the number and spacing of children that they desire.

Voluntary family planning results in profound health, economic, and social benefits for families and communities. These benefits include:

- Protecting the health of women by reducing high-risk pregnancies
- Protecting the health of children by allowing sufficient time between pregnancies
- Fighting HIV/AIDS through providing information, counseling, and access to male and female condoms
- Reducing abortions by preventing unwanted pregnancies
- Supporting women's rights and opportunities for education, employment, and full participation in society
- Protecting the environment by stabilizing population growth

Quality FP/RH services ensure that clients are fully informed and receive comprehensible information about the range of contraceptive choices available, how they work, and their success rate when used correctly. Facility-based as well as community-based FP/RH services should also provide information about contraindications and side effects of proposed methods.

PVOs are in an ideal position to promote the use of FP/RH by creating linkages between the communities they work in and facility-based programs. PVOs are also well suited to support community-based providers who can make FP/RH methods more readily available.

[^] **Note:** This section replaces the old section 4.a entitled, "Child Spacing and Reproductive Health".

Key family planning and reproductive health outcomes include, but are not limited to: correct, voluntary use of contraceptive methods, healthy spacing of births, reduction of unmet need and total fertility rate; increased age at sexual debut and age at birth of first child; prevention of abortion as a method of fertility regulation.

Family Planning Saves Lives!

Throughout the developing world, millions of mothers and their children die each year due to complications from births that are too close together or too early or too late in a woman's life. Every day, more than 30,000 children under age 5 die – many from low birth weight or other pregnancy-related complications. And each year, more than 500,000 women die – at least one woman every minute of every day – of causes related to pregnancy and childbirth; 99% of those deaths are in developing countries.

Current research has revealed that birth intervals of **at least three years** are associated with lower infant/child/maternal mortality, and improved infant/child/maternal nutritional status. By reducing the number of births and spacing births at least three years apart, family planning can thus potentially prevent a quarter of infant deaths. Very short birth intervals are associated with increased risk of maternal death and complications of pregnancy. It is estimated that by allowing women to delay motherhood, and avoid unintended pregnancies and unsafe abortions, family planning can also prevent one in four maternal deaths. FP/RH programs can also help prevent the spread of HIV/AIDS and other sexually transmitted diseases (STDs) by providing condoms and other barrier methods, counseling and, in some settings, STD diagnosis and treatment.

USAID Family Planning/Reproductive Health Program Priorities

- USAID has concentrated its **efforts** on maximizing access to information and services and improving the quality of care in FP/RH. USAID FP/RH programs support all the components of FP/RH programs, including service delivery, training/performance improvement, information and communication, sound program management, research, commodity procurement and logistics, policy development, and program evaluation.
- Family planning services are an integral and cost-effective reproductive health intervention and consequently are a predominant **focus** of USAID's population and health assistance program. New emphasis is being given to selectively incorporating, where feasible and appropriate, other selected components of reproductive health, such as HIV/STI prevention, post-abortion care, and prevention of harmful practices, such as female genital cutting.
- **Young adults** present an important program challenge given the large numbers of young women and men entering their reproductive years. At present, these groups are often neglected by FP/RH programs, and are exposed to the risk of unintended pregnancy and/or sexually transmitted disease. To address this problem, the Bureau for Global Health has developed a new initiative to provide basic education on reproductive health and contraception before the onset of sexual activity. This initiative (the YouthNet project) will encourage abstinence and delayed marriage and onset of sexual activity; provide sensitive and confidential FP/RH information and services; and lay the basis for life-long reproductive health.

- **Sustainability** must be addressed for effects to be lasting. Programs must focus on building and improving management capacity of provider organizations, including the development of strategic plans and management information systems. Increasing cost recovery and financial sustainability are key elements of Global Health's assistance to host country organizations.
- In addition, programs are increasingly involving **men** more fully in FP/RH. More communication and shared decision-making on family size and FP/RH matters between partners need to be encouraged, and male responsibility for sexual health, fertility, and child-rearing must be fostered. Studies indicate that the involvement of men in FP/RH counseling increases family planning use.

Family Planning Interventions

Effective FP/RH programs require that women and men are:

- 1) aware of the advantages of family planning;
- 2) motivated to practice the behaviors necessary to achieve their desired number and spacing of children; and
- 3) have access to high quality FP/RH information, services and commodities.

The first two elements require the development of community and facility-based behavior change strategies. Behavior change approaches use both quantitative and qualitative data to identify key FP/RH behaviors and develop methods for changing these behaviors at the household, family and community levels (see BCI section). This discussion will focus on the third component: access to high quality FP/RH information, services and commodities.

Before making a commitment to add FP/RH to an existing child survival program, it is important to involve the community in assessing their own needs and demands for FP/RH services and identifying potential barriers to providing these services. The community's beliefs and practices must guide the selection of a FP/RH service delivery strategy. For example, in a community where services are available, but where women do not seek services because of tradition, the strategy would differ from that used in a community where unmet needs are high because women and men simply lack information about their FP/RH options.

Program Planning for Service Delivery

There are some initial steps that should be taken in deciding whether to initiate a FP/RH intervention. Within the context of the project site/community, FP/RH needs to be defined, and the benefits determined. Involving key stakeholders in this decision is essential in obtaining commitment to the integration of FP/RH, as well as in identifying potential constraints. Community needs, demands, and attitudes have to be assessed, and national policies consulted. Existing services and resources need to be determined, along with an assessment of their quality, and a project strategy should be designed. It is important to consider different service delivery models such as community-based distribution, facility-based services, and referral mechanisms. A monitoring system must be established, training needs determined, and a logistics system established to ensure sustainable commodity availability.

Lastly, reimbursement for commodities and services must be discussed and may include establishing a user-fee system, subsidizing activities, or leveraging resources from other sources.

The following are issues to consider when planning a FP/RH intervention:

- Review potential public health benefits of FP/RH activities; review existing data on contraceptive prevalence rates, fertility rates, unmet need for family planning/birth spacing, attitudes towards contraception, and possible barriers to family planning activities.
- Review national and local policies and guidelines on FP/RH, and existing program activities.
- Determine the level of commitment and support for FP/RH program activities from policy makers, district and local MOH staff, community decision-makers, community health workers, and PVO staff. Potential constraints should also be identified.
- Assess community needs and demands by involving the community from the outset in an assessment of current attitudes towards FP/RH and contraception, contraceptive use, access and availability of services, and local perceptions and beliefs, including potential cultural/religious constraints (e.g., women's status) to family planning use. Interviews with women and men may need to be conducted separately. Decide on the unmet need and demand for FP/RH services.
- Identify existing services and resources: Meet with other organizations and groups to determine the extent to which FP/RH services are already being provided. Determine the availability of other financial or informational resources in your community that could be used for program activities. Review available data on the quality of health worker performance.
- Review essential systems for delivering FP/RH services; training; supervision; logistics systems for the supply of contraceptives; monitoring and evaluation systems; referral systems; district planning and management.
- Determine how FP/RH relates to other program elements and identify where there are missed opportunities for FP/RH service provision.

Household/Community: The development of community-based behavior change strategies is discussed in more detail in the BCI section. The following areas are particularly important when developing FP/RH interventions:

- Religious, cultural and ethnic beliefs about children, contraception, birth spacing and the role of women;
- Key decision makers in the home (husband, parents, mothers-in-law, grandparents);
- Local words and terms for discussing pregnancy, contraception and sexuality-related subjects;
- Access to health services;
- Affordability of services including how ability and willingness to pay varies with the time of year;
- Interest and availability of community groups or individuals (religious leaders, elders, teachers, community committees, women's groups, men's groups) to help with education and communication.

Health Workforce (facility- or community-based): A set of provider job competencies or tasks needs to be developed, regardless of whether the service provider is community- or clinic-based. At a minimum, counseling, which supports informed choice by clients seeking FP/RH services should be part of this skill set. Similarly, all staff should be able to refer clients for services that they do not

offer. Which FP/RH services are to be offered by which kind and level of health staff should be determined by local polices and the availability of methods. It may be possible that at some sites it is appropriate for staff to be trained in providing surgical or injectable contraception.

Training materials should be based on international standards and directly related to the trainees' expected job performance. Whenever possible use and adaptation of existing training materials is encouraged. Whenever skill development is a part of a training activity, practical sessions, whether in the clinic or classroom should be a cornerstone of any training. In addition to skills practice, supervision is a critical part of any training. When linking with on-going child health activities, consideration should be given to the amount of time available during clinic sessions or home visits, and organization of work at the facility (and methods to organize staff to add family planning methods). Also important are linking key FP/RH counseling messages to well or sick child visits, and linking with drug procurement systems, monitoring and evaluation systems, and clinical supervision.

Because counseling is a key element of a FP/RH intervention, counseling methods and materials should be carefully developed (or adapted) and tested in the local setting (see the MAQ publication, "Client Provider Interactions in Family Planning Services: Guidance From Research and Program Experience", www.maqweb.org/maqpubs.htm). Qualitative data from local communities should be used for planning and developing methods that use local terms and address local beliefs and misconceptions, see BCI section.

Health System:

Contraceptive Security

FP/RH programs should ensure that supplies of family planning/reproductive health commodities are consistently available in the right quantities and at the right times. Contraceptive Security ensures that every person has the ability to choose, obtain, and use good-quality contraceptives and condoms for family planning and for HIV/AIDS prevention. Four conditions are necessary to ensure contraceptive security. Programs must: 1) estimate current and future commodity requirements; 2) secure funding to meet those requirements; 3) procure the required commodities; and 4) deliver the commodities to community/facility service delivery points in a timely and consistent manner.

A good logistics system ensures a reliable supply of contraceptives. "Logistics" refers to activities concerned with selecting, financing, delivering, and distributing contraceptives and other supplies. To be effective, logistics systems require political commitment, leadership and management, and training and support for the people who make the supply chain work. Effective logistics management information systems (LMIS), skillful product selection, accurate forecasting and procurement, and reliable distribution, including storage and transportation, are also crucial. Programs also need adequate resources (funds, human capacity, etc.) to buy the supplies and support the logistics system.

The logistics system, and availability of contraceptives at health facilities and in communities, should be assessed, and the contraceptive distribution system analyzed if necessary. The procurement and distribution of contraceptives can be linked with systems that routinely procure and distribute other essential drugs, and efforts to improve supply linked with this system. At the facility level the following elements are important for managing contraceptive supply; forecasting contraceptive needs; maintaining adequate stocks of contraceptives; maintaining adequate conditions for storage; and

developing a record-based system for managing inventory. See also the Management and Logistics section.

Guidelines for Estimating Contraceptive Needs per Client per Year

Method	Per Continuing User	Per New User *
Oral contraceptive	13 cycles	6.5 cycles
Condoms	100 pieces	50 pieces
Jelly	6 tubes (per user)	3 tubes
F o a m	6 cans	3 cans
Foaming tablets	100 tablets	50 tablets
Diaphragms	0.3 pieces	1 piece
IUD	0.4 pieces	1 piece
Injectables:		
• Depo Provera	4 doses	2 doses
• Noristerat	6 doses	3 doses
Implant:		
• Norplant (3.5 yrs)	0.3 implants	1 implant

* This assumes that, on average, a client starts using a specific method midway through the year.

Program Monitoring/Management

Clear objectives and indicators for program performance at both the facility and community levels should be established, based on international and national guidelines and standards. Facility and community-based data can be collected in a number of ways (routine systems, periodic surveys, routine supervision, self-assessment), and data collection will ideally be linked with data collection for other program areas. Ongoing supervisory activities should incorporate a review of the basic elements of FP/RH activities – clinical observations of practice, including counseling, are important.

If community-based health workers are used to counsel and/or distribute contraceptives, then strategies for providing a supply of contraceptives, supervising and monitoring performance, referring clients, and ensuring financial sustainability need to be developed and monitored. If community-based agents are to be subsidized, then clear guidelines on how these activities will be sustained in the longer term need to be developed.

Referral practices need to be reviewed, and guidelines developed for first-level health workers on who to refer, when and where. Similarly, the quality of care of referral sites needs to be reviewed and, if necessary, actions taken to improve referral care.

All program activities should be developed, reviewed and implemented in close collaboration with local and district health staff to build capacity in the area of FP/RH, and to help better integrate FP/RH into ongoing programs.

Family Planning/Reproductive Health Methods

Family planning/reproductive health encompasses a full range of methods, both modern and traditional, temporary methods as well as permanent methods. Modern methods include condoms (male and female) and other barrier methods (diaphragms, cervical caps), pills, injectables, intrauterine

devices (IUDs), implants (Norplant), sterilization, Lactation Amenorrhea Method (LAM), and natural family planning methods such as the Standard Days Method (SDM). The Lactational Amenorrhea Method (LAM), which is a tested, effective way to delay pregnancy, is discussed in detail on the Linkages website at <http://linkagesproject.org/lam.html>. SDM is a relatively new method of natural family planning which has been clinically tested and is now being introduced into pilot programs.

All modern methods are highly effective at preventing pregnancy when used properly. However, very few methods are currently available to prevent both unintended pregnancy and HIV/STIs (dual protection). Condoms (both male and female) as well as delay of sexual debut/abstaining from sex or avoiding penetrative sex, mutual monogamy and another family planning method are effective dual protection methods. When counseling clients, it is important to assess their risk of exposure to STIs/HIV, including risk assessment of sexual partner's behaviors, and if at risk, discuss options of dual protection or dual method use. In addition, individuals at-risk or HIV-infected women should receive the method of their choice. FP/RH providers must be trained on method counseling and contraindications to ensure that all women (regardless of their HIV status) have access to family planning methods. In addition, it is important to promote family planning methods that are appropriate for women who are breast feeding.

Any PVO which includes FP/RH in its program must be knowledgeable about all methods and have experience in FP/RH programs. Therefore, the methods are not fully described here. A complete and comprehensive discussion of family planning methods can be found in the text "Essentials of Contraceptive Technologies". For further information on strategies for incorporating birth spacing messages into FP/RH programs see "Spacing births, Saving lives: Ways to turn the latest birth spacing recommendations into results" (see annex for reference).

Informed Choice

The principle of "informed choice" is a key element of FP/RH service delivery. "Informed choice" describes the process of individual decision-making in health care. In an ideal world, it would describe the process by which empowered individuals arrive at informed decisions regarding whether to obtain or decline treatment or services, what treatment or services to select, whether to seek and follow up on a referral, or to further consider the matter. The informed choice process can occur alone or in consultation with health care providers, family, or friends. Ensuring that FP/RH services are provided in a manner that fully respects individual rights to information, voluntarism, and basic health services is important.

Clients who make voluntary and informed choices are more likely to be satisfied and follow through with the chosen method or course of treatment. Individuals who make ill-informed decisions or who are left feeling outside of the decision-making process are more likely to experience regret, adverse health effects, method failure, or to develop distrust in the health care system. Because dissatisfied clients often relay negative experiences to others, these consequences can also undermine community support for FP/RH or other health service delivery programs.

Health decision-making can occur privately and without direct consultation or input from health care providers. However, the health care system and those who work within it can and do significantly influence many health-related decisions. Clients may rely in whole or in part on the information or recommendations made by health care providers. Often, clients do not come to closure on their own

choices until they are within the service delivery setting. In such settings, choices are dependent on the availability of trained, sensitive and knowledgeable professionals, and a range of treatment options and supportive services. Services should support individual decision-making by supplying information the individual wants but does not have, by facilitating evaluation of all information and options, and by offering the means to implement the decision made. Services often fail to live up to this promise, and in some circumstances, individual choice may be unsupported, undermined, or even violated in the service delivery setting.

Individuals arrive at a service delivery sites with varying medical and personal circumstances and with vastly different levels of knowledge about their own health and about options for family planning. They also arrive at various stages of the decision-making process. Some are knowledgeable and have made up their minds about what they want from service providers. Others are at the very beginning of the process and may seek more guidance. For all individuals, however, the process of informed decision-making in the service delivery setting requires some key elements:

- Respect for individual choice and autonomy;
- Two-way communication;
- Information about, or referral to, a broad range of FP/RH methods and services;
- Access to comprehensive information about the method chosen;
- Time for questions and reflection (if desired);
- The right to reconsider at any time; and
- For sterilization, informed consent.

Community and Household: Behavior change strategies to improve knowledge should be developed or adapted based on the cultural, religious and ethnic features of communities, and an understanding of family and household dynamics and decision-making systems.

Health Workforce (Facility- or Community-based): Health workers at all levels need to understand that informed choice is part of the process of evaluating clients, counseling on methods and strategies, and beginning use of a method.

Health System: National policies and guidelines for family planning methods and approaches to counseling and informed choice must be in place for effective programs. Training methods for health workers need to emphasize counseling and communication with women. Regular supervision and monitoring of health staff should include observation of clinical practice and counseling. Exit interviews with women and community-based collection of qualitative data can be used to review client satisfaction and knowledge.

Six Elements of Quality Family Planning Service provision:

- Technical competence of providers
- Interpersonal relations
- Accuracy and completeness of information given to clients
- Choice of methods available
- Good constellation of services
- Continuity of care/follow-up

4.b Maternal and Newborn Care

The health of a mother and her infant are intertwined. In developing countries, a mother's death in childbirth means almost certain death for the infant. In addition, poor maternal health and nutrition and inadequate maternity care directly affect perinatal, neonatal, and



Essential Elements

- Antenatal Care
- Labor & Delivery
- Postpartum Care
- Neonatal Care
- Postabortion Care

and infant mortality rates. Perinatal mortality is usually defined as a death of the fetus after 22 weeks of gestation or of the newborn through the first week of life. Neonatal mortality is the death of a live-born infant in the first 28 days of life. Thus, the two periods for mortality assessment overlap in the first week after birth (often referred to as the early neonatal period).

Infectious diseases are associated with 30-40% of all neonatal deaths, with the most important infectious causes being acute respiratory infections (ARI), neonatal tetanus, sepsis, diarrhea and meningitis. The other most important causes of neonatal mortality are asphyxia (20%), birth injuries (11%), and prematurity (10%). Low birth weight (LBW), associated with increased infant mortality, is directly related to the health and nutritional status of the mother before and during pregnancy.

Safe maternal and newborn care is part of a comprehensive child survival approach, ensuring that women can move safely through pregnancy and childbirth and have a healthy infant. In developing countries, between 25 and 33 percent of all deaths among women of reproductive age result from complications of pregnancy and childbirth. Eighty five percent of the more than 500,000 maternal deaths that occur annually have five main causes including postpartum hemorrhage (bleeding), sepsis (infections), unsafe abortion, pregnancy-induced hypertension disorders (eclampsia), and obstructed labor. Indirect causes, such as anemia and malaria contribute significantly to this level of mortality. For every single death that occurs, it is estimated that an additional 20 million women suffer major complications of pregnancy.

Several interventions are important to the health of the mother before she becomes pregnant. Most important are the development of community support systems; health education and counseling on reproduction, and access to child spacing services; and improvement of women's nutritional status, especially addressing anemia and infections, see child spacing, nutrition, and STI/HIV sections.

Community and facility-based child survival programs can significantly contribute to a reduction in maternal and newborn mortality by focusing on social, medical and system requirements to facilitate appropriate antenatal, labor and delivery, postpartum and newborn care. These include behavior change for prevention, early recognition, referral and treatment of complications; technical competence, systems and supplies for normal deliveries and obstetrical emergencies; and quality education and training for outreach postpartum and newborn care. Coordinated efforts of country governments, indigenous NGOs, international PVOs, bilateral and multilateral donor agencies, and the private sector are essential.

Antenatal Care

Quality antenatal care is associated with a better overall pregnancy outcome for both mother and infant. Antenatal care can foster a rapport between the mother and the health care provider, provide preventive care and health education, identify and treat illness, encourage skilled attendance at birth and prepare the mother, other family members, and birth attendants for possible emergencies. Good antenatal care can help prevent factors associated with newborn mortality such as low birth weight and complications from infectious diseases.

Community and Household: A woman's status in the community (e.g. her decision-making power) will greatly influence her health and health care seeking behavior and thus have an influence on her pregnancy. Positive pregnancy outcome can be enhanced through improved nutrition, prevention of and treatment seeking for infections, and birth preparedness and complication readiness planning with the mother, family, and community.

Community-based behavior change strategies should focus on key behaviors that can reduce pregnancy risks including:

- Taking iron/folate supplements regularly during pregnancy;
- Taking malaria prophylaxis during pregnancy and sleeping under insecticide impregnated bed nets in areas with high malaria transmission;
- Selection of an appropriate place for delivery. Households need to develop an appropriate birth plan based on a woman's history and health status;
- Recognition of danger signs in pregnancy by women and family members (bleeding, convulsions, pallor, labored breathing, headache, swollen hands or face, fever);
- Understanding where, when, and how to obtain referral care. Households need to plan for emergency transport to the health center or hospital in case of unexpected complications;
- Nutrition behaviors including increased intake of locally available and affordable foods; and immediate and exclusive breastfeeding after birth;
- Actions to prevent infectious diseases: hand washing; sleeping under insecticide treated bednets; and use of condoms.

In addition to improving the knowledge and practices of women and their families, it is important to educate community providers and other community members about the danger signs and symptoms of complications of pregnancy and delivery. Communities can plan for and support routine and emergency communication and transport, develop blood donation programs, and develop maternity waiting homes or other alternative birth locations for cases of bleeding, twins, or breach presentation. Also, communities can be involved in identification of harmful practices (e.g., dietary taboos) and can mobilize to work with health care providers to address them. Community health workers can be trained to provide, distribute and market iron/folate tablets, (and multivitamin/multimineral tablets where available), condoms and insecticide treated bednets.

Health Facility/ Skilled Health Attendants: Most countries provide routine antenatal care through government health facilities. Utilization rates vary from region to region depending on demand, quality, and access. Depending on the local situation, programs can attempt to increase utilization of antenatal services through health education, by training providers to improve the quality of antenatal services, and by supporting outreach services (or other approaches) to increase access.

Ensuring access to family planning services: To reduce the incidence of unwanted and mistimed pregnancies, health facilities should consider integrating birth spacing activities, including post-abortion family planning counseling, to increase demand for and use of family planning services by women of reproductive age.

Screening for complications: While health care providers need to provide rational screening services, we know that most programs that screen for obstetric emergency risk factors are not able to correctly identify most women who will need specialized obstetrical interventions. Most obstetric complications and deaths occur in women who have no risk factors, and many women with risk factors will not experience an obstetric complication. Identification of actual complications (e.g. infection, hypertension) is more helpful than identification of risk, especially demographic risk (too young, too old, too many, too closely spaced)

Ideally, screening for complications should address only those factors for which concrete and appropriate interventions are available. For example, screening for hypertension as an indicator of pre-eclampsia is useful in areas where pregnant mothers can be monitored and where appropriate action can be taken.

In general, pregnancy-related complications cannot be predicted and many cannot be prevented, but they can be treated. Therefore, programs should screen for complications as appropriate, given the local situation, and in addition they should educate all expectant mothers, family, and community members on the danger signs and actions required to access maternal health services if complications arise.

Antenatal screening: Where possible, health care providers should offer services for prevention, early detection and management of pregnancy-related problems. The most important conditions to include in antenatal screening are:

- anemia (and prophylactic iron/folate and treatment for hookworm, if necessary);
- pre-eclampsia (and referral if necessary);
- STIs (and treatment if necessary);
- tuberculosis;
- malaria (chemo-prophylaxis or IPT in endemic areas);
- Tetanus toxoid vaccination;
- Monitoring of pregnancy progress (and detection of danger signs such as malpresentation and multiple pregnancies); and
- early detection and management of abortion.

Reproductive tract infection case management is the syndromic approach (syndromic diagnosis, treatment, education, counseling, condom promotion, partner notification and follow-up) for treatment of symptomatic men and women. Pregnancy-related activities to reduce reproductive tract infections in pregnant women focus on early detection, management, and referral of complicated cases of RTIs. Case-finding and management of gonococcal and chlamydial infections in pregnant women is needed to reduce the incidence of ophthalmia neonatorum. Case-finding of syphilis by serological testing of all pregnant women before 20 weeks of pregnancy is needed to prevent stillbirth and congenital infections. Sero-reactive clients and their partners need to be treated immediately to prevent neonatal death. HIV voluntary counseling and testing (VCT) is also appropriate, wherever possible.

Health System: A number of elements need to be assessed and strengthened, in collaboration with other health system activities, including effective training for facility and community-based health workers; methods for monitoring and supervising health workers and improving clinical practice; logistics systems to provide adequate supplies of essential drugs and equipment; systems for monitoring and evaluating program performance; and strengthened district planning and management capacity.

Preliminary assessments of program systems are needed to plan activities. Facility and community-based assessments can investigate outcome measures; and program reviews can investigate elements of program performance. IMCI methods often include antenatal care assessment methods, and where possible, programs will link with other child health planning activities. When a maternal or neonatal death occurs, the local health staff can conduct an audit (verbal or social autopsy) to help understand why it occurred and how to prevent neonatal deaths in the future.

Labor & Delivery

Safe, clean childbirth care and skilled attendants should be available to all women during delivery, whether in a facility or at home. Ensuring skilled attendance at delivery is a critical intervention for promoting safe motherhood. However, more than 50 percent of births in developing countries occur at home, and 45 percent of those are with *no skilled birth attendant*. Many families and communities rely on community members and traditional birth attendants (TBAs) for delivery and postpartum care. TBAs can provide clean births for normal deliveries, and in some cases can provide early recognition and referral of certain complications of childbirth such as hemorrhage, prolonged labor, infection, and pre-eclampsia. Although TBAs have an important role in childbirth, they cannot by themselves reduce maternal mortality without appropriate linkages to back-up and referral services. Therefore, in many areas, it is critical that programs work to identify and link persons who are providing delivery and postpartum care, such as TBAs, to skilled attendants and referral facilities.

About 15 percent of all pregnant women will develop a life-threatening complication requiring medical intervention. Therefore, in order to reduce maternal and newborn mortality, it is essential that programs provide emergency obstetric care (EmOC). The most important elements of comprehensive emergency obstetric care are recognition of a problem; prompt referral and management; ready access to community obstetric care, and quality referral care.

Community and Household: *Promotion of effective home care*: A first step in reducing maternal and newborn mortality is the promotion of skilled attendance at births and safe delivery techniques. Apart from training in essential childbirth care for those providing delivery services (nurse/midwives, family practitioners), families and communities need to be educated on essential childbirth care, especially in areas where mothers deliver in the home, and clean birth materials need to be promoted and distributed/sold. Mothers should be informed of birth choices (positions, procedures, and treatments), and services should be provided in a woman-centered manner that maintains a woman's dignity and respects her modesty and cultural traditions. Home-births should ideally be attended by a skilled attendant with a TBA and/or family member present. Where this is not possible, the TBA and/or family members attending the birth need to work with the pregnant women and her family to develop a birth preparedness plan that includes planning for transfer to an appropriate facility for emergency

care. In addition, women should be encouraged to seek postpartum care in a facility with trained providers.

To prevent maternal and neonatal deaths, essential care for deliveries attended by family members and TBAs should include discouraging harmful traditional practices such as unnecessary examination of the vagina, taking herbs to stimulate contractions, and pressing down on the pregnant uterus; and the promotion of “clean” practices (clean hands of the birth attendant; clean cutting of the umbilical cord; clean delivery surface; clean water and soap; clean string to tie the cord; and clean cloths to wrap the baby). It is most important that the instrument used to cut the umbilical cord is clean. One way to achieve a clean delivery is to encourage mothers and TBAs to use clean birth kits that include materials for safe birth techniques, and not to use other manipulation or drugs, unless there has been special training for and supervision of their use.

Mothers, TBAs, and the community should recognize and take immediate action for obstetric danger signs, which may include prolonged labor (over 24 hours for first pregnancy, 12 hours for following pregnancies), excessive blood loss, convulsions, fever, chills, foul-smelling discharge, malpresentation, or a retained placenta.

Care seeking: Prompt care seeking requires that the mother/family recognize and understand danger signs, and then make a decision to act and seek care. Many factors enter into this activity including the decision-making processes in the household, traditional beliefs, traditional unattended home birthing practices, knowledge or beliefs of causes of death, and perception and quality of the health facilities. Some other important factors are fees and incidental costs, actual quality of care of services available at the facility, and availability of drugs. To improve prompt care seeking for complications, programs can identify the barriers, educate families, and train health care providers (nurse/midwives and/or TBAs) to act when necessary. During antenatal care or using other community channels (TBAs, mother’s groups, community health workers, or health committees), mothers can be counseled about danger signs needing immediate referral, and the specific facilities that provide care.

Emergency care: Access to emergency care is often limited. This may be due to financial barriers (including unknown and social costs), long traveling times to the closest referral site, (perceived) poor quality care at the referral site, and difficulty in obtaining transport. The woman, family, and/or TBA may not know where to go or how to contact a transport worker; transport may not be willing to take the woman; or transportation may be too costly. Communities can be encouraged to develop a transport/referral system from their community to a facility providing emergency obstetric care. PVOs may consider short-term loan programs that can be used to pay for emergency transport. Solutions developed by community members to monitor and sustain a transport/referral system are more likely to succeed. Reducing cultural or religious barriers can also improve access.

When access is difficult or transport is likely to be delayed, community health workers and TBAs could be effectively trained and supervised in Obstetric First Aid (and life saving skills). The principle of obstetric first aid in the community is to provide immediate measures that can stabilize the woman and not inflict harm. If MOH policy permits, and appropriate training is provided, community health workers and TBAs can perform basic life-saving skills such as uterine massage, bimanual compression, ORS, and postpartum nasal/sublingual oxytocics. Health workers and TBAs can be instrumental in organizing communities for transport, and for interfacing with the formal health

facility. There is still little experience with this approach and it is not clear if this approach is cost effective.

Immediately after a homebirth, mothers should practice breastfeeding and nipple stimulation, which can reduce postpartum bleeding but those attending the birth should be able to recognize the signs of postpartum hemorrhage and take immediate action to transfer the woman to an appropriate health care facility.

Health Facility: The most important element in reducing maternal and newborn death is in ensuring that the full range of services required to manage obstetrical complications is available, at least at hospitals, on a daily 24-hour basis. Efforts made at the community level during the antenatal period will be seriously hampered by inefficient referral links. Experience has shown that programs are more successful if community education and mobilization efforts are combined with upgrading the quality of care at the facility level. An approach that involves bringing mothers closer to facilities and facilities closer to mothers is required.

Facilities need to be equipped to deal with the most common obstetrical complications. These include postpartum hemorrhage (Oxytocin, IV fluids, and blood transfusion services), obstructed or prolonged labor (proper assessment for presentation/lie and engagement of head, use of partograph, and cesarean delivery), sepsis (antibiotics and surgical procedures), and management of birth asphyxia (equipment for resuscitation). Essential obstetric care (EOC) as defined by WHO includes IV fluids, antibiotics, anti-convulsants, oxytocics, manual removal of a retained placenta, and assisted vaginal deliveries. Comprehensive essential obstetrical services include blood transfusion, anesthesia, and cesarean section.

It is essential for the MOH to assess the capacity of its facilities to provide essential obstetric care. This means that providers at designated facilities are adequately trained and supervised, essential facilities, equipment, drugs and supplies are available, protocols are established, and follow-up actions are taken. Where appropriate, PVOs may also train staff to regularly monitor the quality of essential obstetric care, including care during complications, and ensure that essential systems supporting EOC are operational.

Not all deliveries at health facilities are emergencies, and thus health care staff need to be trained in regular deliveries as well including clean and safe delivery techniques; avoidance of unnecessary vaginal examinations and episiotomies as well as premature rupture of the membranes; and the monitoring of all institutional deliveries using an appropriately adapted version of a partograph in order to prevent prolonged labor. Health workers should also be trained to provide support, respect and kindness for a woman and her family during labor and delivery.

Postpartum Care

The immediate postpartum period lasts from the time the baby is delivered until two to three hours after the delivery of the placenta. This is a critical time for the onset of postpartum hemorrhage, so the mother should be monitored very carefully. Health care providers such as nurses and midwives should also be trained in active management of the third stage of labor—an intervention that helps prevent postpartum hemorrhage consisting of immediate oxytocin; controlled cord traction; and uterine massage. Immediate breastfeeding (nipple stimulation) can also be used for this period particularly in

homebirths. Following the immediate postpartum period, the next 48 hours are important to rule out the development of postpartum infections, or puerperal sepsis (childbirth fever).

As with safe delivery, postpartum care does not need to be based in a health facility. In many countries, with appropriately trained midwives, nurses, TBAs, and other health workers, basic postpartum care can be provided at home. An important element of routine postpartum care is monitoring of the mother and the newborn. Most postpartum deaths occur within the first 24 hours. WHO recommends visits 6 hours, 6 days and 6 weeks postpartum.

Early detection, referral, and treatment of maternal infection or hemorrhage is essential. The promotion and provision of family planning, as well as breastfeeding support is needed. Education about hygiene, rest, nutrition, and infant care will assist the mother in feeling more secure in tending to her new infant. High-dose VA should be given to mothers within the first eight weeks after delivery, and iron/folate therapy for women with anemia, see nutrition section.

Neonatal Care

Immediate newborn care includes warming, drying, stimulation of crying, and ensuring that the baby's airway is clear. Essential newborn care in the first week of life includes immediate, exclusive and frequent breastfeeding, clean cord care, and keeping the baby warm (including "kangaroo" care for small or premature infants).

Programs can educate mothers and families to recognize the danger signs in neonates and promptly provide and/or seek appropriate care for jaundice, hypothermia, failure to suck, breathing problems, cord infections, pallor, and low birth weight. Newborns should also receive prophylactic eye care, and the first doses of BCG and OPV.

Common life-threatening problems that occur in LBW babies are hypothermia, infection, and respiratory distress. Other important problems in the newborn period include blindness from maternal gonorrhea or chlamydia infection.

Community and Household: Since a majority of births takes place at home, TBAs and mothers need to know the basics of immediate newborn care including immediate warming; drying; stimulation of crying; ensuring the baby's airway is clear; clean umbilical cord care; immediate and exclusive breastfeeding; and reduction of unsafe or harmful practices. They also need to know how to recognize and react to danger signs (including neonatal hypothermia, convulsions, inability to suck, difficult or fast breathing, fever, absent cry, purulent discharge from eyes or umbilical area, and vomiting). Routine use of antibiotic ointment in the newborn (at birth) to reduce the risk of ophthalmia neonatorum can be taught to traditional birth attendants. Hypothermia can be prevented by drying the baby immediately after birth with clean, dry towels, by providing skin-to-skin contact with the mother, and by initiating immediate postpartum breastfeeding.

Behavior change strategies need to focus on the essential home care behaviors for mothers, families, and community health workers.

Health Facility: Facility-based health workers need to be able to provide the same elements of immediate newborn care as health workers based in the community (immediate warming, drying,

stimulation of crying, and ensuring the baby's airway is clear). They should reinforce messages and actions taught at the community and household level. They need to be able to quickly recognize hypothermia and to re-warm newborns, referring those who are severely hypothermic. Health workers who are not trained in IMCI need to be able to prevent and manage infections including ophthalmia neonatorum and cord infections. Identification and treatment of serious bacterial infections are part of the larger newborn IMCI approach. Sick newborns are screened with the IMCI case management algorithm for infants 2 weeks of age or younger. This approach assesses, classifies, treats and refers neonates when necessary, and ensures that mothers are appropriately counseled in breastfeeding, nutrition and home care, see IMCI section.

If not already done for use during antenatal care visits, health workers need to be trained in the skills necessary to support immediate and exclusive breastfeeding, introduction and promotion of LAM, and management of breast complications. They also need to be able to address mother-to-child transmission of HIV (MTCT).

Postabortion Care

It is estimated that 67,000 women die annually worldwide following complications of abortion. This accounts for a considerable portion (10% to 50%, depending on the country) of all maternal deaths. These deaths could be prevented if women were able to avoid unwanted pregnancies, and had access to post-abortion care. Complications due to abortion can be prevented, and a substantial reduction in maternal deaths can be achieved if complications are recognized early and treated appropriately.

Community and Household: Provision of safe and effective contraceptive methods at the community level can reduce the number of unwanted pregnancies and thus reduce the number of abortions (spontaneous or induced). The goal of birth spacing is to delay the age of first pregnancy, reduce the total number of children (unwanted and mistimed pregnancies), and increase the time between pregnancies. Systems in place for emergency transport of complicated deliveries can also be used for complications from unsafe abortions. While community attitudes will have an influence on the demand for unsafe abortions, early recognition and action on danger signs can save lives, see birth spacing section.

Health Facility: Effective strategies to reduce maternal mortality associated with abortions include increasing the availability and use of contraceptives, and providing services to address the problem of contraceptive failure in a sensitive and humane manner. Providing services for early recognition and management of abortion complications, especially sepsis, and post-abortion counseling (including contraceptive services or information about where these services can be obtained), will help save women's lives.

The post-abortion period offers health care providers a unique opportunity to help women resolve the problems that might have contributed to unwanted pregnancy and abortion. All women receiving post-abortion care need counseling and information to enable them to understand the health consequences of unsafe abortion, and the risks of becoming pregnant again. These women also need information on safe methods to prevent or delay pregnancy, and where and how they can obtain information, and child spacing and other reproductive health services.

Health System: In many countries, inducing an abortion is illegal. This often does not stop women from seeking abortions from ill-trained providers. The health system needs to be able to deal with the medical complications from badly administered abortions, and to help provide information and counseling to women about reproductive health, family planning and abortion. National and internal PVO policies will greatly influence how a PVO can deal with this issue.

4.c Nutrition and Micronutrients

Malnutrition contributes to about half the deaths of children under five in developing countries, and even in its milder forms malnutrition increases the risk of death. The goal of nutrition interventions is to decrease malnutrition-associated under-five mortality by improving the nutritional status of infants, children, and/or pregnant and lactating women.



Essential Elements

- Child Nutrition
- Maternal Nutrition

The risk of nutritional deficiencies, while present throughout life, is heightened at different stages of the life cycle, such as infancy, early childhood, adolescence, pregnancy, and during lactation. Deficiencies at one stage can have immediate as well as long-term negative consequences for a woman and her child. This chapter focuses on promoting child nutrition and breastfeeding, preventing malnutrition, rehabilitating malnourished children, and promoting maternal nutrition including micronutrient activities. Also discussed are approaches designed to increase household availability of foods that are healthy, nourishing, varied, and plentiful.

Child Nutrition

Leading authorities in public health nutrition have reviewed epidemiologic and programmatic data to identify the most important nutrition objectives and the effectiveness of programs to change these objectives. Six primary behaviors were selected on the basis of criteria such as the demonstrated relationship to morbidity and mortality, ability to be changed through cost-effective public health programs, and measurability. This essential package of nutrition interventions aims to achieve the following six nutrition objectives:

- Exclusive breastfeeding of infants for 6 months
- Appropriate complementary feeding from 6 months of age, and continued breastfeeding until 24 months;
- Appropriate nutritional management of all sick and malnourished children according to IMCI guidelines;
- Adequate intake of vitamin A-rich foods and/or vitamin A supplements by women, infants, and children;
- Adequate intake of iron in combination with other micronutrients and other interventions to prevent anemia; and
- Adequate intake of iodized salt.

In order to achieve these objectives, programs need to implement a focused set of locally relevant actions at the community level, in health services and through BCI activities.

Breastfeeding

Breastfeeding is an unequalled way of providing ideal food for the healthy growth and development of infants, and has a unique biological and emotional influence on the health of both mother and child. Breastfeeding alone is estimated to save about five to six million infant lives annually, and could save

an additional one to two million if breastfeeding practices were improved. The anti-infective properties of breast milk help to protect infants against disease, and there is an important relationship between breastfeeding and child spacing. Breastfeeding is an important crosscutting component of child survival and maternal health programs, and during the first two years of life can significantly reduce mortality. During the first six months of life, infants who are exclusively breastfed have one-fifth to one-sixth the diarrheal mortality and one-third to one-half the respiratory disease mortality that infants who receive no breast milk have. Even partial breastfeeding provides a significant reduction in disease and death.

Breast milk provides complete nutrition for infants, and it changes with time to meet the infant's growth needs. Breast milk provides growth factors, hormones, antibodies, micronutrients (such as vitamin A, iron, zinc etc. including factors for improved absorption), and fatty acids (shown to play a role in infant brain and visual development). Studies have shown that infants who are not fed breast milk perform lower on cognitive and neurological tests including IQ, and also show a higher incidence of SIDS, ear infections, increased incidence and severity of bacterial infections such as meningitis, lower respiratory infections, bacteremia, and infant botulism. Additionally, evidence suggests that exclusive breastfeeding has a protective effect for children who are susceptible to Type I insulin dependent diabetes mellitus (IDDM), and reduces the risk for inflammatory bowel disease and childhood lymphomas.

Immediate breastfeeding after birth is important because it fosters mother-infant bonding and takes advantage of the newborn's intense suckling reflex and alertness immediately postpartum. It allows the newborn to benefit within the first hour of life from the warmth, nutritional, immunological, antibacterial, and antiviral properties of colostrum, as well as reducing the exposure to external contaminants. Colostrum also acts as a laxative and provides a protective coating to the porous newborn gastrointestinal tract. Suckling immediately after birth may also reduce maternal risk of death from postpartum bleeding, reduces infant mortality associated with hypothermia (chilling), ensures that infants do not become hypoglycemic (low blood sugar), and helps to establish sufficient milk quantities in the mother.

Exclusive breastfeeding (EBF) means giving the infant breast milk only – no other liquids or solids except vitamin and mineral drops or medicines. EBF during the first six months of life provides the ideal food for infants by decreasing malnutrition, decreasing infection from foods and liquids introduced at an early age, conferring immunity from diseases, aiding in development and decreasing mortality.

Current WHO Infant Feeding Recommendation: Exclusive breastfeeding for the first six months of life and continued breastfeeding with appropriate complementary feeding at 6 months of age: the introduction of nutritionally adequate, safe and appropriate complementary foods, in conjunction with continued through at least the second year of life. Additionally, breastfeeding should begin immediately after birth or within the first hour after birth.

Breast milk can provide food security for infants 0-6 months of age and the majority of food for children 6-24 months of age. For children 1-2 years of age, breast milk can provide about 20-40% of a child's daily protein needs. In addition, breast milk provides an infant's vitamin A needs for the first six months of life and continues to be a major source of vitamin A to 24 months and beyond.

Although most mothers breastfeed successfully without help, many mothers, particularly first timers, need help. Breastfeeding is not a completely instinctive behavior, and the technique of breastfeeding is a learning process shared by mother and infant. Thus mothers with breastfeeding expertise in the community, as well as trained health care providers play an important role by teaching breastfeeding practices, and providing support for new mothers.

Breastfeeding is also a major biological determinant of fertility. Breastfeeding delays return of ovulation and menstruation, thereby delaying the chance of pregnancy, and protecting a woman's iron status by allowing repletion of maternal iron stores. The Lactational Amenorrhea Method (LAM), which is a tested, effective way to delay pregnancy, is discussed in detail on the Linkages website at <http://linkagesproject.org/lam.html>.

Immediate and Exclusive Breastfeeding

Optimal breastfeeding is defined as exclusive breastfeeding for the first six months of life and continued breastfeeding with appropriate complementary foods through at least the second year of life.

Although initiation of breastfeeding is almost universal in most developing countries, exclusive breastfeeding rates remain low in most areas. Introduction of fluids, such as water or tea, is common in the first few days of life. Delayed initiation of breastfeeding may result in the newborn being provided with other sources of nourishment. Giving pre-lacteal feeds (before the first breastfeed) or supplements (in addition to breastfeeding) can introduce infection and delay or reduce milk production in the mother. If they are given by bottle, this may interfere with suckling. Giving supplements reduces the frequency of breastfeeding, which, in turn leads to lowered production of milk volume.

Other milks or solid foods are often introduced at inappropriate ages, putting the infant at early risk of infection from contamination and from the consequences of reduced breast milk. On the other hand, if solid foods are introduced too late (after seven to nine months of age), infants may be at risk from limited protein or energy intake.

Maternal nutritional status during pregnancy is extremely important. Healthy, well-nourished mothers can go through pregnancy with only a small increase in their dietary intake, and still be able to store enough protein and calories to produce breast milk. If a mother is malnourished, she will still be able to produce sufficient quantities and an adequate quality of milk, but over time she will need more food to maintain her health. It is safer, easier, and less expensive to give an undernourished breastfeeding mother more food than to expose the infant to the risks associated with breast milk substitutes. It is thus recommended that mothers consume an additional meal per day during pregnancy and during breastfeeding.

Community and Household (C/HH): Promoting and facilitating breastfeeding should not be the sole responsibility of the mother or of the health services nor of any single health program or category of

health worker. Ideally, everyone in society will view it as one of a number of important health and nutrition behaviors that merits encouragement.

Measures to promote behavior change are the basis of breastfeeding promotion programs. However, approaches that are only educational rarely result in changes in behavior. Although many mothers are aware of the importance of breastfeeding, they are often reluctant or unable to do it effectively. Programs should focus on identifying barriers to breastfeeding and developing strategies to target these barriers. An example of this approach is the use of support groups. Groups provide social and emotional support, concrete and helpful information and assistance, increased self-confidence, satisfaction, recognition, empowerment, instruction in improved breastfeeding practices, and help mothers to overcome obstacles to breastfeeding. Support from household decision-makers that have a direct influence on infant feeding decisions and practices, such as fathers and other family members is also important.

Well-designed breastfeeding programs promote:

- 1). Initiation of breastfeeding immediately postpartum, within the first hour of birth and with skin-to-skin contact;
- 2). Elimination of harmful practices that interfere with the infant receiving colostrum;
- 3). Sustained breastfeeding exclusively for the first six months including frequent, on-demand feeding (including night feeds);
- 4). Sustained breastfeeding after six months of age with the timely introduction of appropriate foods until about 24 months of age;
- 5). Offering of LAM as a child spacing method, to be used during the first six months postpartum, along with support transitioning to other family planning methods.

Behavior change strategies need to be developed using qualitative and ethnographic data on local practices, beliefs and terms for breastfeeding, see BCI section.

Health Facility: Health workers can be influential, particularly through their professional associations, in helping the community to strategize on how best to promote breastfeeding and to support breastfeeding mothers. They are well placed to act as sources of authoritative information on breastfeeding, to establish forums for reviewing related policies and programs, and to promote appropriate action inside and outside the health sector. Health care providers, including community-based providers such as TBAs, need to be able to properly assess a mother's breastfeeding technique and provide appropriate information on how to resolve basic breastfeeding problems. At a minimum, health care providers should be able to assess: 1). Proper breastfeeding attachment and positioning; 2). Proper frequency and length of feeding for the infant's age and growth needs. The IMCI approach includes an assessment of breastfeeding practice and counseling on breastfeeding and complementary feeding at home.

All women, especially pregnant women and mothers can benefit from educational and promotional activities on breastfeeding. The key to counseling women on breastfeeding is to tailor a personal approach to specific needs identified from knowledge of both the individual and social environment. Group counseling sessions have often proven more effective than individual, since shared experiences help women to foresee potential obstacles to breastfeeding success.

In Hospital Settings, appropriate steps need to be taken to change hospital policies and practices so they are in accordance with the WHO/UNICEF "Ten Steps for Successful Breastfeeding". The ten steps are:

- 1) have a written breastfeeding policy that is routinely communicated to all health care staff,
- 2) train all health care staff in skills necessary to implement this policy,
- 3) inform all pregnant women about the benefits and management of breastfeeding,
- 4) help mothers initiate breastfeeding within an hour of birth,
- 5) show mothers how to breastfeed, and how to maintain lactation even if they are separated from their infants,
- 6) give newborn infants no food or drink other than breast milk, unless medically indicated,
- 7) practice rooming-in (allowing mothers and infants to remain together 24 hours a day),
- 8) encourage breastfeeding on demand,
- 9) give no artificial teats or pacifiers (also called dummies or soothers) to breastfeeding infants, and
- 10) foster the establishment of breastfeeding support groups and referring mothers to these support groups on discharge from the hospital or clinic.

Health System: Breastfeeding promotion programs should be consistent with national policy and be developed according to the cultural environment of the program area. Constraints to breastfeeding, such as maternal employment and heavy workload should be considered when planning the components of a breastfeeding intervention.

In many countries, the promotion of formula and other substitutes for breast milk far exceeds the effort to promote breastfeeding. In some settings, mothers are given commercial packs containing free samples of breast milk substitutes and other items either during pregnancy, or on discharge from maternity wards. This practice is not in accordance with the International Code of Marketing of Breast Milk Substitutes, leads to unnecessary use of those products, and reduces the likelihood of early and sustained breastfeeding practices.

The recommendation to introduce complementary feeding at age four to six months was based on the belief that breast milk alone was not adequate to support growth of some infants during this period. Furthermore, it was also thought that complementary feeding should begin before six months of age in order to get infants used to eating other foods. Infants who are fed other food or drink earlier than six months show no growth advantage, take less milk when complementary foods are added, and have more acute respiratory infections and diarrheal disease. Furthermore, their mothers are more likely to have an unplanned pregnancy. The current recommendation for exclusive breastfeeding has therefore been updated to "six months".

Breastfeeding Techniques

Many women believe they cannot produce sufficient quantities of milk to satisfy the nutritional needs of their infants. However, the most common cause of insufficient breast milk for a normal or an underweight baby is insufficient frequency of suckling. Milk production is directly linked to a process of supply and demand. When the infant suckles sufficiently, the woman's body knows to produce milk. When this process is interrupted (through the introduction of other liquids or foods that displace the suckling, suckling of objects other than the breast, or separation of mother and infant), the cycle is broken and milk supply decreases. The cycle can easily be reinstated by increasing the suckling frequency and duration. Infant growth, spurts which increase the infant's demand for milk occur

generally at 2 weeks, 6 weeks and 3 months of age. Quite often babies appear more hungry and want to eat more often. Mothers often feel unsure about their milk supply and tend to offer other foods and liquids, interrupting the cycle of milk production. The most important message for a mother to receive is that she must allow the baby to suckle more frequently and for longer periods of time.

Establishing good breastfeeding skills (proper positioning, attachment, and effective feeding) may need to be taught. A breastfeeding infant should be held close to the mother, with its whole body facing the mother: the baby's ear, shoulder, and hip should be in a straight line. The infant's mouth should open wide just before attaching so that the nipple and as much of the areola as possible is in the mouth. If properly attached, the lips are rolled outward, with the tongue over the lower gum, and the nose pressed closely against the breast. Signs of effective feeding should be observed: visible jaw movement drawing milk out, rhythmical suckling with an audible swallow, and no drawing in of cheeks. If a mother is experiencing pain while breastfeeding or has painful, cracked or bleeding nipples she should be assessed for proper positioning and attachment of the infant.

To encourage effective suckling and to prevent the introduction of contaminants, no bottles or pacifiers (dummies or artificial teats) should be used. Some newborns and most older children may feed successfully in a variety of positions. If a mother has to miss a breastfeed, she can maintain her supply by expressing milk when she would have breastfed. Expressed breast milk can be fed by cup or spoon at a later time, and it can be stored without refrigeration for up to 8 hours (and up to 5 days in a refrigerator).

In response to the infant's needs, the composition of breast milk changes within a feeding. At the beginning of each feeding, foremilk, or the first milk has a higher water content. As the feeding progresses, the breast produces a creamier and energy-rich milk known as hind-milk. If an infant is not encouraged to suckle long enough at the breast during a feeding, he or she will mostly feed on the foremilk and not on the hind-milk, and may appear hungry sooner than expected. This not only affects the hunger periods of the infant, but also has an impact on their growth pattern. Quite often, mothers are not aware of the process and may interrupt a feeding and switch to the other breast or stop the feeding completely. Breastfeeding should be sustained as long as the baby wishes on the first breast before offering the second breast. For comfort reasons, a mother can begin each feeding on the breast offered last. If a feeding is delayed or skipped, the mother can hand express to relieve fullness.

The risk of breastfeeding problems and AIDS transmission through breastfeeding can be reduced or avoided through appropriate breast care, good feeding practices (including positioning), and early treatment of problems. Essential to good breast care is proper hygiene (washing with water followed by air drying of the nipples after each feeding, and limiting the use of soaps, creams, lotions, and oils.). Cracked or bleeding nipples should be protected by breast milk or a small amount of lanolin (oil) after each feeding. If a mother is engorged (swollen and tender breasts), hand expression will be necessary to soften the breast and relieve fullness. The application of hot compresses to the affected breast will also help relieve this problem.

Community and Household (C/HH): As mentioned above, mother-to-mother support groups can provide concrete and helpful information and assistance to breastfeeding mothers and can help improve breastfeeding practices. Community based providers and TBAs can be trained in breastfeeding techniques and guidance.

Health Facility: Health workers dealing with pregnant women and mothers of infants need to be trained in the skills necessary to support breastfeeding mothers. “Breastfeeding guidance” is not always clearly described, but consists of practical help, educational messages about technique and feeding patterns, and psychological support. Every mother needs to learn how to express breast milk to feed her infant and to maintain lactation in the event of separation. In the case of low-birth weight infants, eventual breastfeeding may depend on early and effective support with milk-expression.

Breastfeeding and HIV/AIDS

Only breastfeeding and HIV is covered in this section. MTCT is covered in detail in the STI/HIV/AIDS section. HIV and infant feeding is an important public health issue, particularly in regions where HIV prevalence is high, and where infectious diseases and malnutrition are the leading causes of childhood deaths. Infants can die from both a failure to breastfeed, or from HIV transmitted through breastfeeding. Parents need to know the mother’s HIV status and the risks associated with each feeding method.

Even in countries with the highest prevalence rates of HIV, the majority of pregnant women are uninfected. And, even among the HIV positive women, the majority of their infants remain uninfected after birth. When a pregnant woman is HIV positive, the chances are nearly two out of three that her infant will not become infected. This risk must be compared to the risks of not breastfeeding; infants who are not breastfed experience two to twenty times the mortality of their breastfed peers. These risks must be considered in program and policy decisions.

Program managers and policy-makers must consider some major factors when making changes to current infant feeding recommendations. 1) How will these changes affect overall program goals for improved maternal and child health and birth spacing. 2) What are the alternatives available to families in the service areas, and 3) resources at the household level. (Replacement feeding can be very expensive. If the household does not have the financial resources to be able to purchase the recommended amounts necessary to nourish the child, then the resource considerations should be made very clear to the mother as she is being counseled)

Mother-to-Child Transmission

Infection rates among children born to HIV-infected mothers:

- during pregnancy 5-10%
- during delivery 10-20%
- **during breastfeeding 10-20%**

The overall risk of maternal-to-child transmission is increased by a range of factors related to HIV disease (viral load, CD4 count, viral characteristics), the mother (vitamin A deficiency, fissured/cracked nipples, poor breastfeeding techniques, delivery factors), the pattern of breastfeeding and breast health, and the infant (neonatal skin and mucous membranes, mixed feeding). Of utmost importance is to ensure that a breastfeeding mother does not become HIV+ while breastfeeding. If she does, the risk of transmission is nearly 30%, so counseling for all breastfeeding mothers on condom use and infection prevention is vital.

Community and Household (C/HH): In many communities people living with AIDS (PWAH) are still stigmatized, and this can influence mothers and couples when deciding how to manage HIV risk; individuals may avoid voluntary counseling and testing (VCT), for example, or if the mother is HIV positive, bottle feed the child. De-stigmatization of AIDS and community education on HIV and

breastfeeding can help change community attitudes and beliefs. Community-based providers and community groups can be effective channels for improving knowledge and practices, see HIV/AIDS section.

Health Facility: Many health workers still have misconceptions about the risk of MTCT, and often assume that every HIV positive mother will pass the HIV virus to her child. Even when the HIV status of the mother is unknown, breastfeeding is sometimes discouraged for this reason. In high-prevalence HIV areas, health workers should recommend that all women, regardless of HIV status, be educated on optimal infant feeding practices for survival, growth, and development.

A woman who is HIV negative or of unknown status should exclusively breastfeed for six months, with the introduction of complementary foods at around six months, and the continuation of frequent, on-demand feeding for at least 2 years.

HIV-positive women who choose to breastfeed need to be encouraged to practice exclusive breastfeeding for six months, and then to introduce appropriate complementary foods. Mixed feeding (i.e. partial breastfeeding and the consumption of solid foods and other liquids) should be avoided for children less than 6 months. If the woman experiences breast problems such as mastitis, cracked nipples, or a breast abscess, she needs to be advised to breastfeed first with the unaffected breast and to express and discard milk from the affected breast if the baby will not suckle at it. HIV-positive mothers should seek immediate care for a baby with thrush or oral lesions, and if the mother presents with AIDS-related conditions (prolonged fever, severe cough or diarrhea, or pneumonia), should visit an appropriate health facility immediately. The direction is less clear is for the 6-24 month olds, although mixed feeding should equally be avoided for children in the 6 to 24 month age group.

HIV-positive women who choose replacement feeding need to be counseled on safe and appropriate preparation and use of available artificial infant formula or other milk-feeding alternatives for the first six months, and use of a cup, not a bottle, to help reduce risk of contamination. Availability of wet-nursing from other mothers with known HIV status in the community can be considered if this is culturally acceptable. If the household does not have the financial resources to be able to purchase the recommended amounts necessary to nourish the child, then the resource considerations should be made very clear to the mother as she is being counseled.

Health System: Recommendations and policies on breastfeeding need to be based on epidemiological data: breastfeeding is safer than artificial feeding. Practices that lower the risk of transmission through breastfeeding including exclusive breastfeeding and preventing and treating breast problems, serve to increase the advantages of breastfeeding over artificial feeding.

Current infant feeding recommendations:

A woman who is HIV negative or of unknown status should exclusively breastfeed for six months, with the introduction of complementary foods at around six months, and the continuation of frequent, on-demand feeding for at least two years.

Mothers who are HIV positive and choose to breastfeed can reduce the risk of HIV transmission through appropriate breast care, good feeding practices (including positioning), and early treatment of problems. Studies have shown that exclusive breastfeeding (avoiding any exposure of foreign substances in the infant's immature gut) may reduce the risk of HIV transmission through breast milk.

In the majority of countries with BHR/PVC-funded PVO child survival programs, under-five mortality from causes other than AIDS far exceeds AIDS-associated mortality, and safe alternatives to breastfeeding are rarely available. Organizations should assess the situation in their program area, including MOH policies, and make the most appropriate determination regarding this issue.

Complementary Feeding

Interventions to prevent childhood malnutrition should promote complementary feeding practices that ensure adequate growth and micronutrient status, reduce the detrimental effects of illness, and emphasize optimal feeding practices that are age-appropriate for the infant/child.

There is growing evidence and agreement that exclusive breastfeeding should continue to six months, with complementary feeding beginning at six months of age, and not before, see breastfeeding above.

Cultural norms, infant growth spurts (generally occurring at 2 weeks, 6 weeks, and 3 months of age), painful breastfeeding experiences, separation of mother and baby, and lack of appropriate support and information often lead to the premature introduction of inappropriate foods such as water, teas, cereals or porridge, or other substances. The early introduction of these foods exposes the infants to harmful contaminants and disease, jeopardizes the infant's growth, and decreases the mother's breast milk supply- disrupting the birth spacing effect of breastfeeding. On the other side of the spectrum, if foods are not introduced by about 7 months, infants may be at risk from limited energy intake which will affect their growth.

After the age of six months, breast milk alone does not usually provide all the nutrients needed by the infant. From this age on, infants are also likely to be developmentally ready to consume a variety of foods and their caretakers are also more likely to accept the feeding of semisolid foods. At this age, the infant's gastrointestinal tract is mature enough to digest foods and the immune system is developed enough to respond to environmental pathogens. In addition to appropriate complementary feeding, continuing breastfeeding until 24 months of age is important to prevent nutritional deficiencies. Breast milk is a rich source of fat, vitamin A, calcium, and high-quality protein. Breastfed children are 65 to 90 percent less likely to develop vitamin A deficiency.

The IMCI "foodbox" outlines recommended feeding frequencies and provides guidance regarding the types and qualities of the complementary foods that are recommended for children in different age groups in the 6-24 month period, as does the publication *Facts for Feeding*.

Community and Household: Traditional feeding practices sometimes need to be improved. It is important that mothers give age-appropriate quantities of food and numbers of feedings, actively feed their children, and give foods that have an appropriate energy and nutritional value. Often mothers need to modify the composition, frequency, and quantity of food they give to infants and young children. For complementary foods to have an appropriate energy and nutritional value, most staple foods (such as wheat, millet, corn, rice, and cassava) need to be enriched. Enrichment ingredients with high nutrient-to-energy and energy-to-volume values can often be found in local environments. Reducing the water content and introducing animal foods, fats, oilseeds, nuts, legumes, and varied fruits and vegetables along with the staple can improve the diet's nutritional density.

To increase household availability and diversity of food as well as household food security, projects can, as an element of a child survival program, introduce home gardens and other agricultural activities to increase the household supply of and access to nutrient-rich foods. Since research shows that animal sources of iron and vitamin A are significantly more bio-available than those from vegetable and fruit sources, increasing consumption of animal sources of vitamin A is also encouraged.

Most families in developing countries engage in agricultural activities for economic reasons. Therefore home gardens and other agricultural activities do not, by themselves constitute a nutrition intervention. The role gardens play in improving the diets of mothers and children depends largely upon the objectives of the activity and the implementation strategy. Agricultural programs established solely for the purpose of income generation or worker incentives have not demonstrated a positive impact on household nutritional status. Targeted gardening programs with specific nutritional objectives have succeeded in demonstrating nutrition-related improvements. However, planting of fruit trees takes some up front work, a few years to mature, but thereafter can provide a non-labor intensive source of potentially micronutrient rich fruit to the household.

Mothers of small children in developing countries, and sometimes pregnant women have extremely heavy workloads, and additional agricultural activities can further increase the burden. When including agricultural activities, one should keep in mind which family members will be involved in the activity, and family time and resource constraints to participation. It is also important to include activities to promote consumption of the products by target populations at the household level, and to develop strategies for monitoring consumption.

Appropriate storage and agro-processing is important for the success of agricultural activities. Storage refers to keeping agricultural products dry, at an optimal temperature, and off the ground to protect the food from insects and other pests. A common intent is to ensure the household greater food availability (for sale or consumption) for longer periods between harvests. Agro-processing refers to methods that can increase shelf life and/or preserve nutritional content. Measures to reduce food losses should be promoted. For example, solar drying can increase the year-round availability of some foods. But it is not always so simple, as the agro-processing method of solar drying, if done incorrectly can deplete the food of water soluble vitamins. (for more information Child Survival PVOs can contact FANTA) There are a number of PVOs/NGOs specializing in small-scale agricultural programs and lessons learned from these projects may be useful for child survival programs that wish to begin agricultural interventions.

Funding for agricultural activities in child survival programs must come from PVO matching resources and may not be funded by BHR/PVC.

Facility: Nutrition activities should be considered an integral part of all health contacts with pregnant women and mothers of small children. Nutritional assessment and counseling is an integrated part of the IMCI strategy, but health workers need also to include appropriate and relevant nutrition interventions during other contacts such as well baby visits and immunization sessions. Counseling on complementary feeding for IMCI is conducted using a food box that is adapted for the local setting to include foods that are appropriate and acceptable to the population. Qualitative data on types of foods available, their acceptability, and current feeding practices, are collected in order to adapt the feeding counseling guidelines. A clear protocol for collecting feeding data and then using the data to develop the IMCI food counseling guidelines has been developed and tested in a number of settings.

Complementary feeding counseling guidelines used as a part of the IMCI protocol may also be useful for developing counseling materials for community level health workers, or other community providers, groups or individuals.

System: As with all health and nutrition issues, the health worker should be aware of current policies and guidelines in order to be able to reinforce messages and behaviors mothers have received or learned in the community. Health managers need to translate policies into protocols and train, supervise and support health workers at all levels.

Nutritional Management

Childhood diseases such as pneumonia, diarrhea, measles, HIV/AIDS, malaria, and fevers cause serious feeding problems and damage the nutritional status of children. To assure appropriate nutritional management of all sick and malnourished children according to IMCI guidelines, the PVO and or its partners will need to rely on specialized local assessments to develop concrete and culturally appropriate strategies and messages. Health workers need appropriate training with extensive practice, and strong supervision and quality control to ensure that they have good technical and counseling skills. Ministries or departments of health are likely to have teams dedicated to introducing the IMCI strategy. Program managers working in nutrition and health-related activities should become familiar with local initiatives for IMCI.

Community and Household: *Hearth Nutrition Model:* One relatively new approach to community based nutrition rehabilitation, which has been working very well and takes a holistic approach, is the Hearth Nutrition Model. The model involves mothers, families, and neighborhoods in rehabilitating their own malnourished children by using local foods and knowledge. Growth monitoring and counseling, de-worming, and micronutrient supplementation are an integral part of Hearth interventions. The goal of this approach is to not only rehabilitate the participating children but also demonstrate the importance of good feeding practices. This helps to reduce the prevalence of childhood malnutrition in the community and to energize the mothers and community to take broader, sustained action against malnutrition and poor health.

In the early 1990s, the Hearth approach was initiated in Bangladesh by World Relief Corporation and the Christian Service Society as part of a PVO child survival program, in Haiti by the Albert Schweitzer Hospital, and in Vietnam by Save the Children (U.S.) and the local government. An evaluation of the Haiti program indicates that while the short-term rehabilitation of severely and moderately malnourished children was highly motivating to mothers, the most important long term impact of the program was the prevention of nutritional deterioration in mildly malnourished children. The evaluation of the Vietnam program found that severe and moderate malnutrition in the community was virtually eliminated, which led to plans for national implementation.

Growth Monitoring and Promotion (GMP), Counseling, and Follow-up: Growth monitoring is **frequent** weighing to identify children who are falling behind in growth. It provides the opportunity to take corrective action and reinforce positive feeding behaviors. Effective growth monitoring programs include **regular** assessment of child growth; action for the caretaker to improve nutritional management of their child; action for the community or program to support the family; and follow up of the child to review growth and feeding practices over time. Appropriate training with extensive practice, strong supervision, and quality control to ensure that health workers have good technical and

counseling skills is particularly important for growth monitoring activities. Just weighing children regularly (monitoring) by itself, without promoting activities to improve feeding practices will not improve child growth.

For children who fail to gain weight despite improved feeding practices, programs can consider providing extra food for growth-faltering children; providing facility based rehabilitation; ensuring access to effective medical care; and making plans for follow-up of children returning to the community. Follow up is a key factor contributing the success of GMP activities. Growth monitoring efforts can also include methods to identify the children least likely to attend growth-monitoring sessions and to target them for weighing.

Supplemental feeding activities; Supplemental feeding can be important in times of severe food shortages and in areas with chronic food shortage. However, by itself, supplemental feeding is not a sustainable approach to correcting maternal or child malnutrition. Where organizations are engaged in such programs, the integration of other health and nutrition activities known to improve nutritional status and activities to improve household food security are needed.

Successful supplemental feeding programs have explicit nutrition objectives and a plan for sustaining health and nutrition activities when the supplemental feeding ends. When a child enters a supplemental feeding program, an assessment of infant feeding practices is performed to determine possible problems that contribute to the child's condition. This assessment should be comprehensive and take into account recent illness, micronutrient supplementation and deworming history, number of other children in the household, immunization history, etc. in addition to feeding practices. When problems are identified, a caretaker receives the same quality nutrition counseling services and follow-up as described in the Growth Monitoring and Promotion section of this document.

Facility: Guidelines for a health facility-based approach to the management of childhood illnesses are included in the WHO/UNICEF IMCI materials. The IMCI charts and manuals for health facility clinicians include guidelines for assessing the nutritional status and feeding patterns of children, counseling on complementary feeding, vitamin A and iron supplementation, and treatment of worms. Effective management of other common childhood illnesses will also reduce the risk for malnutrition in these children. WHO recently published guidelines for the management of severe malnutrition, see IMCI section.

Vitamin A

Because of its demonstrated impact on child survival, vitamin A (VA) interventions are a priority, VA supplementation can reduce mortality in children between 6 and 59 months of age by 23 to 34 percent. Providing VA supplements to this age group every 4 to 6 months is recommended by WHO and may be feasible through many child survival programs, even if other nutrition and micronutrient activities are not being implemented.

Programs in countries or areas where vitamin A deficiency (VAD) is a public health problem are encouraged to consider including a VA intervention. WHO provides a list of countries with VAD. Additionally, the simple cut off suggested by WHO: Under 5 Mortality rate (U5MR)>70 may be used. There are also many clinical (e.g. night blindness) and biochemical (e.g. serum retinol) surveys that can be done to determine if there is VAD in the program area (see references for more information).

Documented benefits of VA include:

- Improved VA status of deficient children aged 6 months to 6 years dramatically increases their chances of survival.
- Risk of mortality from measles is reduced by about 50%, mortality from diarrhea is reduced 40% and overall mortality is reduced by 25-35%.
- VA is at least as effective as immunization or oral rehydration in preventing mortality. (The three are not, of course, mutually exclusive.)
- Improved vitamin A status of deficient children reduces the severity of infectious illness, especially measles and chronic diarrhea. Good vitamin A status is associated with a reduction in the rate of hospital admissions and reduced need for outpatient services at clinics and therefore lower overall cost of health services.
- A recent study suggests that preventing VAD of women before and during pregnancy greatly reduces (44%) their risk of mortality and morbidity around the time of childbirth, probably through increasing resistance to infection.
- VAD contributes to anemia. Children and pregnant women whose VA status is improved through fortification or supplementation have been shown to experience increases in hemoglobin concentration. VAD impairs iron utilization.

In some countries there are lingering concerns about the safety of high-dose supplementation for young infants (100,000 IU). Some transient side effects may be reported in this age group, but no lasting, detrimental effects have been shown and the mortality reduction of supplementation far outweighs the side effects.

Community and Household:

- **Supplementation.** Low cost and relatively easy to implement. This intervention should not be thought of as a short-term approach, rather a single aspect of a complete strategy to reduce VAD within a project area, region or country.
- **Food-based approach.** This includes improving the production and consumption of foods rich in VA. Adapting to local and cultural norms is important for the success of this intervention.
- **Fortification.** While this has traditionally not been an area of involvement for PVOs, there are now important leadership and coordination opportunities that can be explored.

While any individual PVO may opt for only one VA (or micronutrient) strategy, it is now being recommended that areas with VAD should approach the problem with a variety of strategies and interventions. This is because some program redundancy serves to protect the area in case one strategy falters, and some interventions may be more appropriate for one area than another. If a country has a fortification program but finds that the fortified food is not reaching a remote district, PVOs can assist with distributing supplements in project areas.

Supplementation: Achieving high coverage with vitamin A supplements is important. In a number of countries, USAID has worked with its counterparts to establish periodic, active, institutionalized distribution of vitamin A supplements. This strategy includes a number of variations and principles for distribution programs. Distribution is periodic (usually twice a year) either during a specified week or day(s); distribution is "active" in that mothers are asked to take their child to designated centers or outreach posts for delivery of the supplements; distribution is institutionalized in that it is run or managed routinely by health workers; and, distribution is often integrated with other interventions such as growth promotion, deworming, bed nets, vaccinations, and other micronutrients.

There is some evidence that periodic, active, institutional distribution of vitamin A works. In many countries, mechanisms already exist to accommodate twice-yearly distribution. In others, where access to health services is good, relatively inexpensive promotional campaigns to encourage families to bring their children to the health facilities on particular days during the year for a preventive dose of vitamin A can achieve high coverage. Vitamin A supplementation through active outreach strategies that reach large populations can also be an effective strategy provided it is linked to existing systems and does not take staff and resources from other routine services.

NOTE: Vitamin A supplementation protocols are currently being revised and may change during the next year. PVC/BHR will advise PVOs when these are finalized. The current VA Supplementation Protocol (WHO, 1997) is:

Target Group	Dose
Infants < 6 months of age, only if not breastfed. (Breastfeeding infants should be protected by post-partum dosing of mothers)	50,000IU orally, one dose
Infants 6-12 months of age	100,000 IU orally, every 4-6 months
Children > 12 months of age to 5 years	200,000 IU orally, every 4-6 months
Mothers (post-partum, lactating mothers)	200,000 IU orally within 8 wk. of delivery, one dose. Note: within 6 weeks if mother is not exclusively or fully breastfeeding

Food-based approaches: Food-based approaches need to be developed with strong knowledge of cultural preferences. Nutrition education messages should be adapted to promote consumption of locally available sources of vitamin A and fats, wherever possible. In areas where sources of vitamin A are scarce, expensive, or seasonal, organizations may consider promoting home gardening or other agricultural activities, emphasizing foods high in vitamin A. Strategies for micronutrient gardens should include selection of a variety of foods; year-round availability; a women-centered approach; and high-quality seed production.

New evidence suggests that vitamin A precursors in orange/yellow fruits and vegetables are twice as effective in enhancing serum vitamin A levels as are those found in dark green leafy vegetables. Neither fruits nor vegetables are as effective as animal products (dairy products, eggs) in maintaining stores of vitamin A. The absorption of vitamin A precursors is improved when fruits and vegetables are consumed with a source of fat.

Health Facility: Assessment of vitamin A status and treatment with vitamin A is an integral part of the IMCI strategy. Immediate treatment with high dose vitamin A capsules is particularly important for children with xerophthalmia, severe infectious diseases (particularly measles), and severe protein-energy malnutrition (<3 S.D. weight/height or <12.5 cm mid-upper arm circumference). The IMCI approach identifies these children, offers prompt referral if necessary, and ensures that they receive appropriate doses of vitamin A supplements.

In areas of VAD, frequent supplementation for all women of childbearing age with small doses of vitamin A (not exceeding 10,000 I.U. daily or 25,000 I.U. weekly) is also appropriate and may be beneficial. However, large doses of vitamin A during pregnancy are teratogenic (may cause birth defects), particularly early in pregnancy. Thus, a woman of childbearing age should receive high-dose

vitamin A only when it is reasonably certain that she is not pregnant. Health workers should supplement women immediately postpartum, or within 8 weeks after delivery if she is breastfeeding exclusively, or 6 weeks after delivery if not breastfeeding exclusively. When a woman requires treatment for potentially blinding xerophthalmia (in cases of acute corneal lesions), the woman's risk of mortality outweighs the chance of a birth defect and it is recommended she receive treatment.

Iron/Anemia

Iron deficiency is by far the most common cause of anemia. Iron deficiency anemia affects both women and children. It diminishes the ability to fight infection, increases risk of death in children with malaria, and is the most common micronutrient deficiency among women in developing countries, where approximately 40 percent of women of reproductive age are anemic. Iron deficiency is prevalent among pregnant women because iron requirements are greatly increased during pregnancy. Iron deficiency is a cause of maternal morbidity and severe anemia, which is a cause of maternal mortality. Anemia causes fatigue and apathy in both women and children.

Community: When anemia is due to low dietary iron intake (low consumption of heme iron food sources--meat, poultry, and fish), low consumption of iron-fortified foods, or low bio-availability (high consumption of inhibitors of iron consumption), anemia prevention should be included in nutrition education. Inclusion of nutritional messages discouraging iron-inhibiting foods/fluids (such as tea with meals) and promoting iron-enhancing substances (such as vitamin C-rich foods) may contribute to the effectiveness of a dietary approach. Recent research suggests that requirements for iron during pregnancy cannot be met when animal products are rarely consumed.

Facility: In areas where the prevalence of anemia is 40 percent, iron supplementation is recommended for all pregnant women (without screening) to prevent and treat anemia. Anemia in children may also be treated with iron supplements. A recently released INACG publication, *Guidelines for the Use of Iron Supplements to Prevent and Treat Iron Deficiency Anemia*, provides guidelines for supplementation of women and children and should be consulted before initiating an iron supplementation program.

International (and MOH) recommendations for Iron supplementation (INACG/WHO/UNICEF 1998.), which are as follows: Iron/Folic Acid Supplements for Pregnant Women to Prevent Anemia - For All Pregnant Women

Prevalence of anemia in pregnant women in the area	Dose	Duration
<40%	60 mg iron + 400 µg folic acid daily ^a	Six months in pregnancy (or if started late, extend to postnatal period for a total duration of six months) ^b
>40%	60 mg iron + 400 µg folic acid daily ^a	Six months in pregnancy, plus continuing to three months post-partum (or a total duration of nine months)

Notes:

- Where iron supplements containing 400 µg of folic acid are not available, an iron supplement with a lower level of folic acid may be used.
- If six months duration cannot be achieved, increase the dose to 120 mg iron in pregnancy.

Failures of iron supplementation programs have been the result of the lack of counseling about dosage, and client noncompliance due to lack of awareness of the benefits of iron, and minor side effects. The most frequent cause of iron supplementation program failure is an unreliable supply of iron. Some women do not continue taking their tablets due to forgetfulness and concern about taking a “medication” for too long. Ensuring an adequate supply of iron/folate is a particularly important element of supplementation programs.

In areas where the prevalence of hookworm is greater than 20 percent among children aged 2 to 5 years, periodic (usually twice a year) de-worming is indicated for children over age 2 years and for pregnant women. Hookworm is a causal factor for anemia with increasing age and severity of infestation. Thus older children and pregnant women are more at risk. Anti-helminthics can be given during pregnancy if they are given after the first trimester. When taken in standard dose at the beginning of the second and third trimesters, Mebendazole and albendazole have been shown to be safe in pregnancy. While women and children will usually become re-infected, the improvement of anemia in both women and children and the increased growth in children following treatment can be significant. De-worming of children less than 2 years of age is not recommended because these children are much less exposed to infection, and have much lower prevalence rates of the disease.

Treating malaria is essential for treating severe anemia where *P. falciparum* malaria is endemic. In high transmission areas, malaria control can decrease the prevalence of severe anemia in young children, the prevalence of anemia during first and second pregnancies, and the rate of low birth weight, see malaria section.

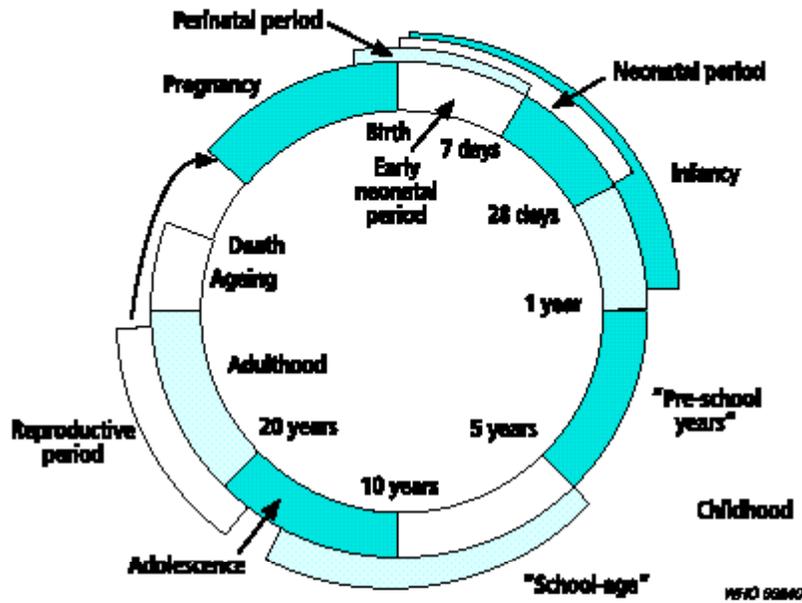
Iodine

Iodine deficiency increases the risk of spontaneous abortions and stillbirths and causes impaired fetal brain development and infant death. It is the cause of goiter and of cretinism, which reduces the mental capacity of infants. Promoting and monitoring consumption of iodine-fortified products such as salt, if available, may be practical for some child survival programs and could have a measurable impact on mortality and morbidity. In program areas where iodine deficiency is a problem and where iodized salt is not available, PVOs can work with ministries of health to secure ongoing supplies for national/district consumption. Programs may also consider providing oral iodized oil supplements annually. Other alternatives include iodized water or administration of Lugol’s iodine solution monthly.

Maternal Nutrition

Maternal nutrition status relates to maternal and child health and survival in several ways. Anemia in mothers is related to poor pregnancy outcome; maternal deficiencies of some micronutrients can affect the quality of breast milk; lactation places high demands on maternal stores of energy and protein; and malnutrition in childhood or during adolescence can lead to low birth-weight babies, which is associated with higher rates of mortality. Six actions have been identified as being most important for improving women’s nutritional status in Africa. Most, but clearly not all of these, will also be relevant in other regions. These priority actions are based on a review of epidemiologic and programmatic data which identified activities shown to improve maternal nutrition and be feasible for health programs to implement.

Fig. 3. Main stages for which interventions are implemented in the life cycle approach. Shown are the key stages in the life cycle starting from infancy through to late adulthood. In the life cycle approach, outcome indicators are linked to the risks to health at each stage of the life cycle.



The essential health sector actions for maternal health in Africa are:

- Adequate dietary intake by women to meet their energy and nutrient needs
- Micronutrient supplements taken by pregnant and lactating women
- Anti-malarial drugs taken by pregnant women in endemic areas
- Anthelmintic drugs taken by pregnant women in endemic areas
- Early initiation of breastfeeding and exclusive breastfeeding for 6 months
- Child spacing for three years or longer

Child spacing, breastfeeding and malaria are addressed in detail in other chapters.

Multiple factors, including dietary intake and infection cause under-nutrition in women. Dietary intake and infectious diseases are influenced by household food security (availability of nutrient rich foods in the community); maternal care (whether men share in the workload so women can reduce energy expenditure during pregnancy); and health services and environment (which can reduce the infectious burden). Clearly some of these factors are outside the direct scope of the health sector, but comprehensive programs are encouraged to involve other sectors in nutrition programming.

A mother's own health and nutritional status can also be compromised if her nutritional stores are depleted through nourishing her child. Short intervals between pregnancies and/or the overlap of lactation and pregnancy into the third trimester (an overlap that is experienced by as many as half the women in some countries) can result in lower weight gains in pregnancy. This low weight gain sets up a cycle of intergenerational growth failure.

If a woman is sick, anemic, malnourished, depressed, or exhausted from heavy physical labor, her care-giving ability will be diminished. Poor nutrition can limit a mother's ability to seek preventive and curative care for herself and for her children.

Interventions designed to improve the nutritional status of non-pregnant adolescent girls may have a positive impact on both mothers and children but are beyond the scope of this program. PVOs may propose interventions in adolescent reproductive health, but funding for them needs to come from the match or another funding source as BHR/PVC funds may not be used for this activity.

Adequate Maternal Dietary Intake

Maintaining energy and nutrient balance is required for women's health and nutrition throughout their life cycles, but especially during pregnancy and lactation when nutrition demands are increased. Insufficient weight gain by the mother during pregnancy, and low pre-pregnancy weight significantly contribute to low birth weight of the infant (usually due to intrauterine growth retardation and/or prematurity). Low birth weight is an important determinant of an infant's chance of survival. Improving weight gain before and during pregnancy protects the health of the mother and improves birth weight, thus decreasing infant deaths. Weight gain also contributes to proper physical and cognitive development of the unborn child.

Ideal pregnancy weight gain should be gauged by the pre-pregnant body mass index (BMI); women with low pre-pregnant BMI should gain 12.5 to 18 kg. This weight gain can be achieved by adding an additional full serving per day of the staple food (rice, cornmeal, millet, sorghum, yams, bread, etc.). Adding additional calories through a variety of available local foods, including protein sources is the ideal, but is not always possible. Where food security is a problem, recommending an increase in the family staple is the easiest and cheapest way to increase the caloric intake of a pregnant woman. In some countries, pregnant women should be encouraged to reduce their physical workload during late pregnancy in order to increase weight gain.

A lactating woman needs to increase her energy consumption by about 650 kcal/day to meet the demands of lactation, particularly if she cannot draw from fat stores accumulated during pregnancy, and if she is exclusively breastfeeding. Increased energy intake may also help to build a mother's confidence in her ability to breastfeed exclusively. As in pregnancy, an additional one or two servings of the staple food can provide these calories.

The major causes of maternal mortality are hemorrhage, eclampsia, unsafe abortion, infection, and obstructed labor. Malnutrition plays a role in most of these. Obstructed labor often occurs among nutritionally stunted women who are short in stature as a result of chronic malnutrition and poor dietary quality, and malnutrition and anemia predispose women to infectious diseases.

Maternal Micronutrients

Diets are often low in several nutrients simultaneously due to low intakes of animal and fortified foods. Iron deficiency is caused by inadequate dietary intake of bioavailable iron, increased iron requirements of pregnancy, and increased blood loss (such as from hookworm and schistosomiasis). Anemia is the most commonly measured indicator used to screen for iron deficiency, but it reflects only the most severe stage of iron deficiency when the level of hemoglobin falls below a cut off point. It has been suggested that for every anemic woman in a population, there will be at least another additional iron deficient woman who is not yet anemic. Thus iron supplementation is essential to correct preexisting iron deficiency and prevent newly occurring iron deficiency that can be brought on by pregnancy.

Recent research suggests that requirements for iron during pregnancy cannot be met when animal products are rarely consumed. In areas where the prevalence of anemia is 40 percent, iron supplementation is recommended for all pregnant women (without screening) to prevent and treat anemia.

Both well-nourished and mildly malnourished women produce breast milk of high quality and adequate quantity. Only under extreme conditions is the supply and energy-protein content of breast milk affected. However, mothers with adequate fat stores produce milk higher in fat content. Consequently, their infants need to suckle less to obtain sufficient energy. The micronutrient content, however, of the breast milk may be compromised, depending on the woman's diet.

Mature milk (around day 14 and beyond) in well-nourished mothers in developed countries contains around 240 international units (IU) of VA per 100 ml, almost twice the average VA content of the mature breast milk of women in developing countries, where VA deficiency is a public health problem (about 125 IU per 100 ml). Breastfed infants in these areas may receive sufficient VA to meet their immediate needs at about 6 months of age, but not enough to build the stores. Building stores of VA is extremely important for protecting infants from deficiency in the second half of infancy when requirements increase because of more frequent infections and nutrient-poor complementary foods. In such cases, providing mothers with a high-dose VA supplement immediately after delivery can ensure that the supply of vitamin A in breast milk is adequate to meet the infant's daily VA requirement and to build reserves. Fortifying staples eaten by the mother may be another effective option for enriching breast milk with VA.

Maternal Hookworm

Infection with hookworm is common in many parts of the world. Hookworms attach to and feed upon the intestinal epithelium, causing bleeding and loss of blood and iron. Infection with hookworm can be a significant cause of anemia, particularly in areas where diets have little bioavailable iron or in individuals with increased iron requirements such as growth or pregnancy.

Exposure to transmission risk determines which groups in a population will get infected. Where women do the bulk of the agricultural work, they are often the most affected. There are two strategies for hookworm control: breaking transmission and deworming. Breaking the transmission requires disposing of feces carefully (e.g. using pit latrines) and wearing footwear. Deworming reduces worm loads and can have an immediate effect on the iron status of women.

Several controlled trials have demonstrated a positive impact of antihelminthic treatment on hemoglobin levels, with the best results obtained in settings where iron intakes were also increased. In Sri Lanka, as part of the national strategy to reduce anemia, pregnant women are offered a single 500 mg dose of Mebendazole at the earliest antenatal visit after the first trimester, in addition to iron folate supplementation. In plantation workers, this antihelminthic therapy significantly increased the beneficial effects of iron supplementation on hemoglobin concentration and iron stores of pregnant women.

There are several safe and effective drugs available to treat hookworm infection. Drugs have been selected based on a number of criteria including: i) safety record, ii) therapeutic effect, iii) cure rate or efficacy, iv) spectrum of activity, v) experience of local health professionals, vi) training of staff, and vii) cost. The benzimidazoles (Mebendazole and albendazole) are broad-spectrum antihelminthic drugs and at this time, are the most commonly used to treat hookworm and other intestinal worms. Albendazole (as a single dose of 400 mg) may be recommended because it has been shown to be more

efficacious than Mebendazole when used as a single dose, and its price has been reduced substantially over the last few years.

The lack of safety information on antihelminthic treatments during pregnancy has been a barrier to wider adoption of this strategy to reduce anemia, but there is no evidence of such treatment having any adverse effects. The safety issue was addressed recently in a Sri Lankan study where, as mentioned above, Mebendazole treatment was recommended to all pregnant women in the second trimester. The results of the study indicated no significant difference in the rate of major congenital defects between women who had taken Mebendazole and those who had not. These findings support the conclusions of a 1994 WHO Informal Consultation that “single-dose, oral antihelminthic treatment can also be given to pregnant and lactating women. However, as a general rule, no drug should be given in the first trimester.”

Programming for Improved Maternal Nutrition

Based on the available data, the following are recommended practices at the community/household level, and at the health facility level, that will contribute to improved maternal nutrition.

Community and household: Recommended practices to protect the nutritional status of women between the ages of 10 and 49 years include the following:

- Increase intake of food and/or reduce workload to 1) meet increased nutritional demands during adolescent growth, pregnancy, and lactation and 2) improve pre-pregnancy nutritional status.
- During pregnancy, a woman should increase her energy intake by 300 kcal per day.
- While breastfeeding, a woman should increase her energy consumption by 650 kcal/day
- All women should increase micronutrient intake through daily consumption of fruits and vegetables, and/or micronutrient supplements, and/or consumption of fortified foods, whichever is feasible and appropriate. Women of all ages should be encouraged to eat a wide variety of micronutrient-rich foods, especially those rich in vitamin A, iron, and folic acid. In iodine-deficient areas where iodine-fortified foods are not available, iodine supplements are also recommended.
- Initiate breastfeeding early and breastfeed exclusively for 6 months.
- Delay the first pregnancy, increase birth intervals, and reduce fertility.

Facility: The following quality health care services can improve maternal nutritional status:

- Provide effective nutrition and breastfeeding counseling, maternal care, and family planning services.
- Counsel men to make more food available to households and/or to women within the household.
- In areas where malaria is prevalent, give pregnant women anti-malarial treatment in accordance with the malaria treatment and control guidelines of that country.
- In areas where hookworm infection is common, give pregnant women with anemia antihelminthic treatment at the beginning of the second, and possibly again at the beginning of the third trimester.
- Give lactating women a 200,000 I.U. VA supplement immediately postpartum or as soon as possible within the first 8 weeks after delivery (6 weeks if not breastfeeding). Postpartum VA capsule administration efforts can be integrated or coordinated with local maternal care delivery activities.

4.d Immunization

Child immunization is one of the most cost-effective public health interventions for reducing child morbidity and mortality. The goal of immunization programs is to reduce the incidence of vaccine-preventable diseases in children by means of high coverage with potent vaccines administered at the appropriate age. The “original” six target diseases are poliomyelitis; diphtheria, pertussis, and tetanus (DPT); tuberculosis (BCG); and measles. Other vaccines are selected for inclusion in national immunization programs based on disease burden, the ability of the country to acquire the vaccine, and the capacity to deliver the vaccine in a safe and effective manner. It is WHO policy that hepatitis B vaccine be included into routine vaccination schedules. In 34 African countries, national policy protocol includes giving yellow fever vaccine at the same time as measles. Countries also have been encouraged to consider adding new and previously underutilized vaccines such as haemophilus influenza type b. These vaccines and combinations of vaccines are part of the basic childhood immunization package when they are appropriate.



Essential Elements

- Coverage
- Surveillance
- Quality
- SIX plus
- Polio

- **Access to immunization services is difficult in much of the world.**
- **26% of children do not receive the six traditional vaccines.**
- **Worldwide, most children do not receive vaccines against hepatitis B, Hib, and pneumococcal disease.**
- **3,000,000 lives could be saved each year if all children received the vaccines available in the industrialized world.**
- **A child dies every 10 seconds for want of a vaccine**

Progress with Coverage: The internationally accepted immunization goal established during the World Summit for Children (1990) was for 90% coverage of the original six antigens by the year 2000. Reported coverage rates indicated that immunization coverage in many countries has either plateaued at the 80% level or declined from that level throughout the 1990's. Furthermore, coverage never reached the 80% level in many African countries; and in many sub-Saharan countries, coverage is currently under 50%. The reasons for this decline have been the subject of much debate. It is recognized that more attention needs to be given to immunization as one of the pillars of primary health care. Two groups have been instrumental in providing support for immunization programs in developing countries; The Global Alliance for Vaccines and Immunization (GAVI); and the Children's Vaccine Fund, a funding instrument which supports the purchase of new vaccines and provides resources to governments to strengthen the infrastructure of national immunization programs.

Importance of disease surveillance: Success of immunization programs can be estimated by head counts of children, women or girls immunized compared to the target population (coverage). However,

the real performance of an immunization program can only be measured by the reduction in the disease burden it targets. Disease surveillance and program monitoring to manage activities has thus become more important, especially in the context of the polio eradication effort (see below).

Importance of vaccine safety: In addition to strengthening infrastructure and introducing new lifesaving vaccines, greater attention is being given to the manner in which those immunizations are delivered. In developing countries almost a billion injections are given each year in immunization programs alone. This is estimated to be only 10% of the total number of injections provided in a year. WHO estimates that up to a third of these injections are administered under unsafe conditions. The potential for transmission of blood-borne diseases such as hepatitis B and HIV is significant when injections are not given in a safe manner. Immunization programs need to begin to incorporate safer injection policies as well as use new technologies such as mono-dose pre-filled and auto-disable syringes. In addition to injection policies, programs need to provide for the safe disposal of all injection equipment in a manner that protects the community from accidental contamination. PVOs are invited to join the global initiatives, including the Safe Injection Global Network (SIGN).

Reducing vaccine wastage: Wastage reduces the cost-effectiveness of programs. This can be addressed through the use of tools and policies such as vaccine vial monitors (VVMs) and the open vial policy to reduce wastage. The integration of immunization services with other primary health care interventions such as VA capsule distribution can make programs more cost effective.

All organizations contributing to the immunization effort in one country are encouraged to join the Inter-agency Coordination Committee (ICC) or equivalent collaboration mechanism and to advocate with the local/national Government for delivery of immunization services. Participation in the ICC will facilitate, but is not the only way to strengthen coordination efforts with other donors and PVOs.

Coverage

Key program data is needed for program planning and management. Coverage data can be collected using routine facility or community-based data as described above. Small sample surveys have been used in some places to track coverage over time. Periodic evaluation of population coverage is most frequently conducted using cluster sample surveys such as the Demographic and Health Survey (DHS), the UNICEF multi-indicator survey (MICS), the WHO 30 cluster immunization coverage survey (WHO), or the PVO/child survival KPC survey. Other methods that can be used to evaluate and monitor program performance include immunization program reviews (usually conducted nationally; guidelines are available from WHO); system reviews of the cold-chain or vaccine logistics system (methods available from WHO); health facility surveys (collect information on the availability of vaccines, essential equipment and supplies, and observe health worker vaccination practice.) The IMCI health facility surveys collect some of this information, but may not observe immunization practice); and reviews of vaccine safety (methods available from WHO).

Coverage can be expressed as children fully immunized by their first birthday or one can use as proxy DTP3 or measles coverage. The proxy for access is DTP1 or in some cases BCG coverage.

Setting targets and measuring progress: PVOs usually determine coverage at the beginning of their intervention through the KPC survey or other population-based surveys. Targets are set and at the end of the program a final assessment or KPC survey documents outcomes. Progress can be monitored by

recording immunizations when they are given using a monitoring chart; using routine administrative data to estimate coverage over time in project areas; conducting small sample surveys to estimate whether immunization coverage is reaching pre-determined standards (e.g. using lot quality assurance sampling); and community and household mapping to identify children and their vaccination status (census-based methods). Monitoring data can be used to identify and investigate problems, and then modify program activities to address problem areas. Causes for low coverage can be access related (physical, economical or cultural), or lack of demand (due to lack of knowledge, inappropriate hours or place of immunization service, perceived or actual quality of services). Drop out rates, e.g. from DTP1 to DTP3, are a good indication of operational problems that need be investigated and adequately addressed.

Campaigns: Campaign strategies are most often used when there is a large susceptible (unvaccinated) population and a high risk of an outbreak of a vaccine preventable disease, such as measles. In addition, national immunization days (NIDs) are an important element of the global polio eradication effort (see also polio section.) However, campaign strategies are expensive, occur at irregular intervals, and may take staff and resources from routine vaccination program activities, thus they are not recommended as a method for achieving sustainable coverage with childhood antigens in the long term.

Community and Household: Children who fail to receive vaccinations or who fail to complete the series are rarely randomly distributed within a project area. They are usually clustered within pockets of need defined by geography, poverty, ethnicity, and/or other demographic factors. Identification of these groups and the barriers they face is an important first step in addressing the constraints and in boosting vaccination coverage.

PVOs can play a role in linking the community with health facilities by scheduling outreach services to suit community availability, or mobilizing communities to attend immunization sessions (fixed or outreach) and announcing immunization days (“town-criers”, flags).

Many PVOs are active in establishing community-held registers that list newborns. These community-held registers (lists) can be used to record each child’s immunization status, track vaccine defaulters, and identify infants who are not immunized. Families can then be targeted for follow-up. The same registers can be used to publicly recognize parents of children who complete immunizations and monitor immunization coverage in geographic catchment areas (community, parish). They are a good basis from which discussion with village councils can be held on immunization programs and progress.

Sometimes caregivers refuse vaccination or are resistant. This is generated by misinformation, myths and rumors about the safety and purpose of the vaccine and/or a belief that vaccination is against their religious principles. Communication and behavior change strategies can raise acceptance of immunization and create better communication between parents and health worker to reduce drop out rates.

Facility/health worker: *Access*: To increase access, health workers can establish or increase outreach services. Improving outreach services may require additional supplies and resources such as vaccines, transport, cold-chain equipment or lodging for health workers in the community, and therefore needs careful planning. In many situations the most important limitations to outreach are a lack of transport (fuel and vehicles), lodging, incentives or per-diems. As with facility based services, outreach services

should be offered when clients are most available. Communities need to be consulted as to when the best time is for them, rather than the most convenient time for the service provider.

Demand: If people have access to immunization services but are not using them or if there is a high drop out rate, one or more of the following strategies need to be considered: increasing community knowledge about immunization; changing the hours of immunization sessions so that they are more convenient for parents; involving community members in organizing immunization services and solving transport problems. Targeted strategies can seek out defaulters and encourage caretakers to complete the vaccination schedule. Health workers often need training in communication skills, immunization safety, organization of fixed and outreach activities, or other skills that may affect clients' decisions to use the services. Most important is to monitor immunization coverage and use data to inform program strategies.

Avoiding missed opportunities: “Missed opportunities” refers to times when there is contact between a health care provider and a child or woman eligible for vaccination, but vaccination is not given, or not all vaccinations for which the child or woman is eligible are given. One approach to reducing missed opportunities is to integrate vaccination services with other services or to make vaccination available whenever the health facility is open. Merely screening sick children for eligibility but not actually vaccinating them on the spot does not result in a reduction of missed opportunities. Despite the well-established safety of immunizing sick children, health workers are often reluctant to do so for fear that the child might get sicker or that parents might object. A review of over 70 missed opportunity studies indicates that parents will not object if health workers reassure them. Training health care workers to review the vaccination status of all children presenting to the health facility and provide vaccination where indicated is an approach to addressing health worker error. Another approach is to train community health workers who visit homes to give vaccines, which has policy and logistical implications at the health system level.

System: Health workers need clear policies and guidelines, a clearly articulated national immunization schedule and contraindication policies, training and logistics support, regular supervision as well as appropriate recourses to enable them to fulfill their tasks. A multi-year plan for immunization, based on a recent assessment of immunization services, will facilitate planning at all levels. This plan should be an integral part of the primary health care action plan at each level.

Policies and clear application guidelines aimed at reducing waste (ie, open vial policy) and the procedures for introducing new policies and vaccines need to be articulated. A system for community feedback on new policies for immunization should be in place.

In addition to policies and guidelines, health workers must have working supplies and logistics systems, including an adequate cold chain and a cold chain repair system, adequate supply of vaccine, needles and syringes, as well as proper disposal devices (incineration boxes) and a stock management system.

Monitoring and evaluation: All segments of the population, especially the “under-served” need to be taken into consideration at all levels. The use of coverage and population data at the district level for planning and micro planning activities will allow accurate vaccine forecasting to reduce wastage, and planning of logistics for essential equipment and supplies. In addition, data can be used to develop outreach services, and plan community-based strategies for improving access and demand.

Surveillance

Surveillance of immunizable diseases can provide a real measure of project impact and early warning of epidemics. Where possible, surveillance should be done for polio (acute flaccid paralysis - AFP), measles, and neonatal tetanus. Health workers at all levels need to be aware of and use standard case definitions and report vaccine preventable diseases.

Where a disease surveillance system already exists in the project area, it is important to work to strengthen this existing system and to use the resulting data for monitoring and decision making. In areas without disease surveillance, PVOs should consider working towards establishing such a system in close collaboration with MOH staff.

Community and Household: Many PVO projects have included community based monitoring as one of the components of their M&E activities. Some community health workers contribute surveillance data to this system using simple case definitions. Community health workers and community groups can be trained to collect and report community-based data and to use these data for following progress over time. Community-based surveillance for vaccine preventable diseases should be linked with community-based tracking of immunization coverage, and the development of approaches for mapping households and reaching under-vaccinated children.

Facility: Each case of vaccine-preventable disease reaching the facility needs to be reported and investigated to determine whether or not the child received a vaccination. When used in combination with the estimated percentage of the population vaccinated, the percentage of cases vaccinated can be used as a crude indicator of the efficacy of the vaccine. If it is suspected that vaccine effectiveness is declining and the number of cases is increasing there should be an investigation of the cold chain, vaccine administration procedures or a search for new clusters of unvaccinated people in the population. If cases of vaccine preventable disease are noted in non-vaccinated children, these high-risk populations should be identified and vaccinated. In situations where an outbreak is suspected, procedures for managing the outbreak need to be followed, in collaboration with district and national-level staff.

Health System: At each collection point health workers can perform simple data analysis and display their results for use by the community and the health system for decision making. There is also a need at each level to incorporate findings of analysis into program design and correction. Organizations supporting immunization activities can also greatly strengthen existing systems by assuring that routine data collected in project areas (either on coverage, doses administered or diseases) is submitted to the district health officials in a complete and timely manner. Surveillance activities will be enhanced and gain in sustainability if a clear “reaction” protocol is put in place. Disease control strategies (for all diseases under surveillance but more specifically for polio, measles and neo-natal tetanus) need to be defined and put into place.

Quality and Safety

Ensuring provision of potent vaccines is an important component of an immunization program. The provision of ineffective vaccine is worse than providing no vaccine at all because an ineffective vaccination damages the community’s confidence in the vaccination program (“My child got the vaccine but still got measles”). Inefficient vaccines subject the child to the inconvenience and risks of

vaccination without benefit and marks the child as having been vaccinated, therefore precluding effective vaccination in the future. Contamination or poorly maintained vaccine is also more likely to cause reactions and illness than is pure and well maintained vaccine.

Community and Household: As discussed, monitoring quality/efficacy at the population level through surveillance of immunizable diseases is desirable. In many communities households are now responsible for providing injection material to the health facility (this is more often the case for curative services than for immunization services). Injection safety needs thus to be addressed at the community level. In many areas there is a need to create the demand for safe immunizations and other injections. Behavior change strategies can be used to identify misconceptions and false beliefs about the safety or purpose of vaccines, see BCI section.

Facility: To help assure vaccine potency, health workers should be competent in vaccine handling, how to maintain vaccine under the proper conditions and use of Vaccine Vial Monitors (VVMs). These small labels change color to indicate exposure to the amount of heat that can damage the vaccine. Beginning in January 2001, all vaccines supplied by UNICEF are required to have VVMs. *Vaccine Vial Monitor Training Cards* were developed by PATH for the EPI training workshops in Africa and are currently being distributed through WHO/AFRO. They are available in English, French, and Portuguese.

Service providers should be monitored to ensure they are screening for immunization status and providing appropriate counseling and proper administration of vaccines. It is particularly important that health workers inform caretakers as to when and where to return for vaccination. In fact this is more important than increasing parent's knowledge of the names of the vaccines. Exit interviews of mothers leaving immunization services is one way to assess provider-counseling skills. However this method tends to underestimate whether mothers are dissatisfied with their treatment. Supervisory-based methods and facility surveys have been used to monitor and evaluate health worker practices and to target activities to improve practices, see QA section.

Diseases acquired through unsafe injection practices range from infections with blood borne pathogens (hepatitis B and C virus and HIV), bacterial infections resulting in abscesses and septicemia, to traumas resulting in paralysis, and rare hemorrhagic fevers. In addition to unsafe injections there are needle-stick injuries and injuries due to improper medical waste disposal, which may increase the incidence of some of the same diseases (e.g. hepatitis B) that immunization programs try to prevent.

Safe injection practices include using a clean work space, hand washing, using a sterile needle and syringe for each injection, assuring sterile vaccines and diluents, and also skin cleaning and appropriate sharps and waste collection and disposal to minimize needle-stick injuries and re-use. Health workers often replace needles but reuse the syringe. The latter may contain tiny amounts of blood or body fluids and therefore may have pathogens that both contaminate vaccine vials and transmit disease.

Whatever type of injection equipment is used, programs should ensure that there are fail-proof systems in place to ensure that needles are disposed of at minimal risk to the client, provider and the public. Programs should consider introducing auto-disable syringes. However, any decision to do so requires special attention to disposal issues.

Health System: All possible steps should be taken to ensure that vaccine and injection material is provided in sufficient quantities and is in good condition. This provision is achieved by obtaining vaccine and cold chain equipment from a source that adheres to WHO quality requirements and by tracking and maintaining the cold chain from the central store to the child or woman who will receive the vaccine. Locally available refrigerators or freezers for household use are cheaper than WHO approved material, but not as efficient to keep the ideal temperature for vaccine storage. Provision of packages of vaccines, syringes, needles and “safety boxes”, (puncture proof containers for collecting and proper disposing of syringes, “sharps” and other injection materials) accompanied by guidelines and training for their use will encourage safe practices.

Reviews of immunization programs highlight the importance of ongoing monitoring of critical processes even if a program is reported as having "good quality". Immunization programs should include ongoing monitoring systems for the vaccine logistics system (looking at vaccine potency, refrigerator temperature, storage facility adequacy, injection safety, etc.). Periodic reviews of immunization practices including counseling, vaccine safety, and availability of essential vaccines, equipment and supplies require direct observations. Supervisory-based monitoring, health facility surveys, and system reviews have been developed, adapted and used in many countries, and are available for PVO use.

SIX plus

Immunization Schedule for Infants: Recommended by WHO - Expanded Program on Immunization

Age	Vaccines
Birth	BCG, OPV0
6 weeks	DPT 1, OPV 1
10 weeks	DPT 2, OPV 2
14 weeks	DPT 3, OPV 3
9 months	Measles – (Yellow fever)

Hepatitis B vaccine: Official WHO policy calls for the inclusion of hepatitis B (HiB) vaccination into the childhood vaccination programs of all countries. This integration has proven very difficult in most developing countries, as the vaccine remains relatively expensive compared with the OPV, DPT, and measles vaccines. Universal childhood vaccination with hepatitis B vaccine is now officially done in over 100 countries. Despite the cost, which continues to fall, it should form part of the routine schedule in countries with a hepatitis B carrier prevalence of 2 percent or higher. In countries where mother to child transmission of hepatitis B is a major cause of infection, such as in Southeast Asia, the first dose of hepatitis B vaccine is given to the newborn at birth or within the first 2-3 days of life, as this represents post-exposure prophylaxis. In countries where mother to child transmission is not so important, the vaccine can be commenced at the same time as DPT and follow the same schedule as for DPT. In some countries a combined DPT-HB vaccine is being introduced. However this vaccine is only available in limited supply.

Tetanus toxoid (TT): TT should be provided to all women in a rational manner so that each woman receives at least two doses before giving birth to her first child, and up to a total of five doses for protection during her childbearing years. The number needed in any given pregnancy, or even when not pregnant, must be based on the total number of doses a woman has had, and the interval since the

last dose. It is therefore essential that maternal cards (records) indicating TT status be used, retained and screened at each contact the woman has with the health system. Where feasible, all women of childbearing age should be vaccinated with tetanus toxoid, depending on resources and MOH policy.

Vitamin A supplementation: VA supplementation may be part of an immunization program, even if a project is not otherwise involved in nutrition interventions. VA supplementation can substantially reduce under-five mortality in areas where there is VA deficiency. In many countries this intervention has been documented to be more cost-effective than full immunization coverage. Child immunization contacts may be a good opportunity to provide VA supplements to mothers, infants and children. Children over 6 months of age should receive 100,000 IU orally, every 4-6 months (younger infants who are not breastfed, 50,000 IU depending on national policy), but one must look for other mechanisms to supplement the full target group for VA (children up to 6yrs and women after delivery). (NOTE: WHO VA supplement protocols are currently being revised and may change during the next year. PVC/BHR will advise PVOs when these are finalized, see nutrition section.)

Polio Eradication

USAID strongly encourages PVOs to become active in polio eradication. The CORE Group Polio Project has funded activities in several polio endemic countries, but is not able to take new proposals. They can, however, provide some technical advice to PVOs interested in getting more involved.

Status of Polio Eradication: The ultimate goal is to certify the world polio free by 2005. In 2000, the number of documented polio cases has declined to less than 3,500 from 350,000 in 1988. The Americas (PAHO) region was certified polio-free in 1994. On October 29, 2000 the Western Pacific Region (WPR) of the World Health Organization (WHO) was certified free of indigenous wild poliovirus transmission. The WPR is the second of the six WHO regions to be certified as poliomyelitis-free. NIDs/SNIDs continue in some areas to protect against re-importation. Countries in these region will have to maintain surveillance and keep immunization coverage high to avoid re-importation. The 51 countries in Western Europe, NIS, Baltics, and Central Asian Republics (EURO) have not had a confirmed polio case since November 1998; many countries are still improving their surveillance systems; immunization coverage will need to stay high and special attention given to the localized conflict areas in the region.

Countries in the Eastern Mediterranean (EMRO) still have active transmission in several countries with at the end of 2001 confirmed polio cases in Afghanistan, Egypt, Pakistan, Somalia, Sudan; surveillance is improving in these countries but does not yet meet certification standards. In South East Asia (SEARO) there is active transmission in India, although at much reduced levels since the intensification of NIDs/SNIDs in 1999. Most of the countries meet certification level standards at the national level and are working to improve district level performance. Sub Saharan Africa (AFRO) still has active transmission in west and central Africa. Angola, Cape Verde, Chad, Ethiopia, Mauritania, Niger, Nigeria, Sierra Leone, had confirmed polio cases in 2001. Although surveillance is adequate but fragile in east and southern Africa, it is just getting started in the rest of the continent. Data on Polio cases can be found at http://www.polioeradication.org/global_status.html this site is updated at a biweekly rate.

Polio eradication is achieved by maintaining and/or improving routine immunization; by conducting high quality national or sub-national immunization days (NIDS/SNIDS); by establishing high quality surveillance; and by conducting focalized mopping up immunization wherever high-risk areas remain.

All children under five years of age must be reached with at least 6- 10 doses (4 doses by the first birthday) of oral polio vaccine provided through a combination of routine immunizations and scheduled NIDS in order to interrupt poliovirus transmission. WHO hopes to interrupt virus transmission by 2002. PVOs have an important role to play in all aspects of polio eradication.

Routine Immunization: As described earlier, assuring that children receive all necessary doses of vaccine (see schedule above) before their first birthday is essential. PVOs getting involved in polio eradication can help improve routine immunization in several ways. A good start is to participate in micro-planning at the district and national levels. In the process they will identify high-risk areas; improve understanding of caretaker acceptance of vaccination and health worker motivation and improve their understanding of the under-five population. Plans will aim to improve vaccine forecasting; improve the cold chain; rationalize outreach services; reduce missed opportunities to vaccinate and can introduce baby tracking. Micro planning will raise political commitment, and can give the PVO an opportunity to get recognition.

National/Subnational Immunization Days (NIDs/SNIDs): The objective is to reach every child under age 5 with multiple doses of oral polio vaccine. Participating in the NIDs and mopping up activities builds trust in the community; increases confidence in the immunization program and helps build a “culture of prevention”. There are numerous ways that PVOs can play a role during these events.

- Participate on the InterAgency Coordinating Committee: In every country, there is a committee of organizations and interested parties that are working on polio eradication. This is the forum for planning and coordination, resource mobilization and problem solving.
- Participate in micro-planning at the sub-national level. PVOs can assist with such things as mapping communities; providing community guides for vaccinators; providing vaccinators, mobilizers, supervisors or independent monitors; providing training and information to organizers and implementers; hosting meetings of civic, religious, traditional and other local leaders to gain their commitment and support; providing logistics support by arranging transportation for vaccine and vaccinators; monitoring the cold chain, vaccine quality and stock-outs; assisting with vaccine management; freezing ice packs; and printing tally sheets.
- Assist with house-to-house, door-to-door, child-to-child vaccination visits in communities.
- Provide vitamin A.
- Adopt the most difficult and hard to reach areas: urban slums, geographically remote areas, high rise buildings, cross-border areas with migration, refugees, inter-country trade, nomadic or tribal areas, and areas with ethnic or religious minorities.
- Provide non-monetary recognition to vaccinators for a job well done.

Surveillance: Participating in surveillance for AFP and other vaccine preventable diseases will highlight high-risk areas for polio and other diseases. In order to be certified polio-free, each WHO region (PAHO, WPRO, EURO, EMRO, SEARO, AFRO), must meet a rigorous set of criteria. These include weekly reporting of all cases of acute (new) flaccid (floppy) paralysis (AFP – a signal condition for polio) in children under 15 years of age, from every district. Each case should be reported within 14 days of onset of paralysis and investigated immediately by a trained surveillance officer who will take two adequate stool samples. These samples are then shipped to a WHO accredited laboratory to determine if the paralysis is caused by polio or something else (several virus’ and conditions also cause AFP.) The region must maintain certification standard indicators and a non-polio AFP rate of 1/100,000 in children under 15 years for a minimum of three years to be eligible for

certification. An independent panel of experts reviews the data and determines if they are of high enough quality to merit certification. Only regions not countries can be certified polio-free.

There are many reasons why AFP surveillance is lagging: getting to remote areas is sometimes difficult for surveillance officers; poor communication (phone, fax, email, and radio) delays reporting; war and conflict limit accessibility throughout the year making weekly reporting very challenging; care-seeking behavior is variable. If caretakers don't take their children to a facility the case will not be reported. If they take a paralyzed child to a traditional healer first, valuable time is lost in reporting the case and collecting the stool specimens needed for virological confirmation (the "viral load" in the stools drops off after 14 days).

Because PVOs are generally working in some of the most challenging areas for polio eradication, they are in a position to provide an important and complementary role to those activities funded by other organizations such as WHO and UNICEF. In endemic countries PVOs can identify "key informants" who will enhance the work of the formal surveillance officer. PVOs can report any case of AFP to the surveillance officer. If it is more expeditious to do so, the PVO can transport the paralyzed child and a caregiver to the surveillance officer for treatment and stool collection. PVOs can provide extra assistance to a family with a paralyzed child (e.g. food, extra visits by a nurse or doctor, follow up on treatment for AFP, facilitating resource mobilization for children in need of surgery, braces or wheelchairs). PVOs can demystify AFP (it is not caused by magic) and discuss prevention.

In non-endemic and recently non-endemic countries, maintaining high quality surveillance is essential. PVOs can serve an important role by bringing cases of AFP to the attention of the health system; and by participating in all NIDs/SNIDs and mopping up activities. PVOs can train staff to recognize cases of AFP and report them immediately to the AFP surveillance officer assigned to the geographic area. The local ministry of health will know who is assigned to polio eradication in a given geographic area. The national WHO office can provide information and assistance if needed.

Mopping Up: Mopping up is intensive door-to-door immunization. Mopping up is conducted only when surveillance data shows that the poliovirus is in a focalized area. WHO recommends that no less than 1 million children be immunized during mopping up. PVOs can help plan, implement, monitor, evaluate, and promote high quality mopping up.

Other potential roles of a PVO in the Polio eradication effort.

Policies/Coordination: PVOs play an important role both in conveying concerns/successes up the ladder to the national MOH and ICC and in translating policy actions and implications back to their beneficiaries. PVOs can be "independent brokers" of information, perceptions and feedback to the main organizations tasked with eradication MOH, WHO, UNICEF, and Rotary. PVOs can alert partners to human and financial resource needs, unintended consequences of eradication (e.g. per diem issues, disruption of services), and other issues that need to be reviewed at the national level.

Supplies/Logistics: As part of the micro-planning process at the district and national level, PVOs can assist the MOH to determine the supplies needed for conducting NIDs/SNIDs and mopping up. Based on detailed maps of the area, a PVO can help determine the number of children to be covered, the amount of vaccine needed, the number of vaccine carriers, ice packs, megaphones, vehicles etc. to carry out the operation. PVOs can offer their services and in-kind support to this effort by identifying

their own resource needs and working with partners. A clear role can be established for PVOs at each phase of the NIDS efforts.

Planning and Management: Micro-planning has been mentioned earlier, but this is an opportune time to build capacity with local staff. Forecasting skills, vaccine/cold chain/transport management skills can be reinforced. Trouble shooting, contingency planning and anticipating problems are frequently weak in these difficult areas, so polio eradication can be used to improve this type of capacity. Supervision in particular is very weak in most countries. PVOs can use this opportunity to foster supervisory skills e.g. observation techniques, positive feedback/constructive criticism, bringing problems into the light, encouraging innovation, and developing monitoring and evaluation plans.

Communication/Social Mobilization: Bringing the vaccine to the child is more than half the battle. Having caregivers accept vaccination is the rest. Most of the time parents willingly accept vaccination. They need to know when and where to go (or to wait for house-to-house teams), which children are eligible, why they should continue to participate, and understand that the vaccine is free, safe and protective against polio. PVOs bring a lot of credibility to the community and can provide accurate and unbiased information. PVOs can also mobilize community, religious and traditional leaders to participate, maintain commitment and explain the intensification needed to interrupt transmission and achieve certification.

Financing: PVOs can share information about the resource needs in their community through the ICC mechanisms at the district and national levels. In addition, PVOs do contribute financial and in-kind support for the polio eradication and should get credit for their involvement with other partners.

Monitoring/Surveillance: Monitoring is an important part of polio eradication. Monitoring quality during NIDs/SNIDs and mopping up is essential to build confidence in the data generated by the program. PVOs can monitor quality by; conducting grab samples within their communities to identify “zero-dose” and low-dose children; monitoring the use of Vaccine Vial Monitors (VVMs); monitoring the distribution of funds; and participating in other aspects of implementation. Surveillance data will ultimately determine how successful the immunization activities have been. Conducting active case detection and reporting of AFP and other diseases to the designated surveillance officer is a critical role for PVOs not only for polio eradication but for EPI and broader disease control efforts.

Quality/Vaccine Safety: Polio eradication will only be accomplished if the quality of immunization programs are maintained by providing potent vaccine; maintaining a functional cold chain; ensuring safe injection practices; ensuring the availability of essential supplies; developing the best social mobilization plan for the local situation; providing supervision that observes practice and solves problems; and investing in the staff and systems that will support routine immunization services in the long term.

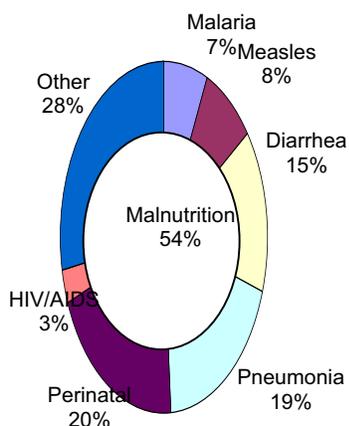
4.e Integrated Management of Childhood Illness (IMCI)

Of the estimated 10.5 million infant and childhood deaths that occur each year in the developing world, 70% are due to five conditions: pneumonia, diarrhea, measles, malaria, and malnutrition. Moreover, at least three fourths of all childhood illness episodes are caused by one of these conditions. An underweight child has an increased risk of dying. Malnutrition contributes to at least half of all childhood deaths, and about 80% of these malnutrition related deaths occur in children with mild to moderate malnutrition. Since many sick children have more than one of the most important conditions at the same time, and since clinical signs in children are often non-specific, a single diagnosis is often impossible or inappropriate.



- Essential Elements
- Health Workers
 - Health System
 - Family & Community Practices

Distribution of 10.5 million deaths among children less than 5 years old



Source: EIP/WHO 1999 data

The Integrated Management of Childhood Illness (IMCI) approach is an approach for preventing and managing infant and early childhood illness in settings with high infant and child mortality rates. Launched by WHO and UNICEF in 1992, IMCI is designed to combat the main causes of illness and death in an integrated “whole child” approach and to contribute to the healthy growth and development of children. IMCI focuses on the five most important causes of infant and child mortality in developing

countries -- acute lower respiratory tract infections (ARI), diarrhea, measles, malaria, and malnutrition (including vitamin A and iron deficiency), or a combination of these conditions. It is intended to supplant more vertical programs with integrated and manageable packages of services for prevention and treatment of illness and promotion of child health and development. Neonatal causes of illness and elements of immunization and maternal health are also included.

There are three key **components** to the IMCI approach:

1. Improving case management skills of the health-care staff – to do this, countries develop and adapt local guidelines, train health care providers, and train health workers in problem-solving in the community.
2. Improving the overall health system – to do this, countries develop interventions to improve the availability of drugs and supplies, strengthen the service quality and organization at health facilities, reinforce referral services, and ensure equity of access to health care.

3. Improving family and community health care practices - to do this, countries develop interventions to strengthen community participation, promote appropriate family response to childhood illness, promote child nutrition, and create safe environments for children.

Over 80 countries have now adopted IMCI as their official policy, and are in the process of adapting the treatment algorithms, training of health workers, and/or full implementation of all 3 components. Each of these components will be briefly discussed.

Component 1: Improving case management skills of the health-care staff

1. IMCI Training Materials

The core of the IMCI approach is an integrated clinical case management algorithm (decision charts) that provides simple guidelines for assessing sick children for the most prevalent causes of childhood illnesses and common associated conditions, classifying the conditions, then managing or referring the child, and counseling the caretaker. The integrated approach differs from previous vertical case management approaches in its more holistic approach to assess the child and not just the presenting symptom. Applying the algorithm reduces inappropriate use of antibiotics and missed opportunities for immunization and nutritional counseling.

Two IMCI algorithms are available: one for children 1 week to 2 months of age; and one for all children between 2 months and five years. IMCI is designed for use in first level outpatient facilities where there are no diagnostic tools available. In individual countries, the combination of interventions that make up IMCI may be modified to include conditions that are important causes of childhood morbidity and mortality locally, and for which there are effective treatment and/or preventive options available (i.e. HIV/AIDS). Each child is screened for ARI (including pneumonia), diarrhea, measles, malaria (fever), malnutrition, immunization status, and ear problems. The algorithms guide health workers to address not only the most obvious problem or complaint a child presents with at the health facility, but also to look for and address other nutritional and infectious disease problems. The IMCI algorithm uses simple signs and symptoms to teach health workers to accurately identify childhood illnesses in outpatient settings, give appropriate combined treatment of all major illnesses, counsel caretakers and provide preventive services, and to speed up the referral of severely ill children. As new findings from child health research become available, the interventions included in the global strategy may evolve.

It is important that the core technical content of the generic WHO IMCI materials be retained since the case management guidelines in these materials are based on data – the relative sensitivity and specificity of the case management steps have been tested in a variety of clinical settings. Guidelines on counseling and home case-management are also based on data from field studies. It is not appropriate to modify the case-management algorithm, or to remove certain components of it. Combined vertical training programs (ARI and CDD training, for example) do not represent an “integrated” approach to the management of sick children. The generic materials are adapted for use in each country, but this process (see below) does not change their core technical content. References for the generic IMCI training materials, and the technical basis for these materials are listed in the annex. Also included is the computerized IMCI training course developed by the QA Project. Senior PVO staff can be trained in the standard IMCI course so they can best apply these guidelines in their child survival programs and contribute to IMCI adaptation in those countries where national level adaptation hasn’t yet taken place.

2. Adaptation of Generic IMCI Training Materials

The algorithms, wall charts and modules for training health workers in IMCI are available in generic form and require adaptation for use in each country. The adaptation process includes: modifying the assessment, classification and treatment guidelines for the local epidemiological profile of the country and to be consistent with local treatment policies and practices; developing nutritional counseling guidelines (the nutrition food box) based on local foods and feeding practices – this often requires the collection of qualitative data (e.g. TIPS); and the insertion of local words and terms so that the counseling guidelines can be understood locally. In some cases the generic algorithms will need to be modified; if there is limited malaria transmission then the malaria component is not needed; other conditions that may be important causes of childhood morbidity or mortality, such as HIV/AIDS or dengue fever, may need to be added. The adaptation process requires some time (in many countries from six months to a year, and is often done by the national IMCI coordinating group). Training materials often need to be adapted for use in district and regional settings.

When IMCI has already been implemented in a country, the ministry of health will have adapted materials that can be used by PVOs for training. If adapted IMCI training materials are not available, PVOs need to decide whether they want to proceed with IMCI training before there is national adoption of the strategy and adaptation of materials. PVOs can work with the national and district IMCI working groups to participate in adaptation of materials, especially the development of the local foodbox, and preferred local words and terms. PVOs also have a unique opportunity to sit on national-level IMCI coordinating committees to help inform new national policies and their uptake.

3. Training Methods

Three main approaches to training have been used in countries implementing IMCI. The quality of training will be higher and more sustainable in the long term if local trained staff are used as facilitators – these staff will usually be MOH staff who have received IMCI facilitator training. Many countries, especially in Latin America have now developed alternative training courses of fewer days duration, which are less time and resource intensive.

A. Standard training using adapted generic IMCI materials: for first level health workers.

This is the most frequently conducted training. The course is 11 days in duration and involves considerable clinical practice in both the hospital, inpatient and outpatient settings. Trained IMCI facilitators are needed. A senior staff person, with experience running the course, usually coordinates the course. Hospital and outpatient facilities that see enough sick children to provide a sufficient number of cases are used; clinical staff is needed to coordinate the clinical practice sessions. The training involves a number of strategies including reading, role-plays, videos and question/answer sessions as well as clinical practice.

Ideally, PVOs will coordinate with the national IMCI training program in order to train staff in project areas. If it is not possible to link with the on-going national IMCI training program, PVOs may want to organize local IMCI training. It is important that this be done in close collaboration with the national and regional IMCI program staff and that trained facilitators are used. Ideally, PVO staff planning and supervising project activities will plan to undertake IMCI training – either with national training programs or through periodic regional IMCI training coordinated by WHO.

B. IMCI complementary course training: for first level health workers with limited literacy

This course was developed by BASICS and World Education in collaboration with WHO. It is designed for first level health workers with limited literacy skills – these health workers have difficulty completing the standard IMCI course which requires that they read approximately 500 pages of material and complete written exercises. The core technical content of the complimentary course is identical to the standard IMCI course. The course uses a variety of adult learning techniques (using participatory methods) which involve less reading. The course was field tested in Zambia in November 1997 and subsequently adapted for use in Bolivia where it was tested at the end of 1998. The current version of the course is three weeks in duration – this may be prohibitive in some situations. IMCI-trained facilitators are trained to conduct the complimentary course using a “Facilitator Training Program Module”.

C. IMCI training for community health workers

In countries with limited access to health facilities, community health workers may be the only source of primary health care. In these settings community health workers can be trained to use the IMCI approach to manage and refer sick children. For further information on training of CHWs, please refer to Component 3.

Component 2: Improving the overall health system

A number of system elements are important for the effective implementation of IMCI and to sustain performance of health workers over time. All of the key supports need to be reviewed and strengthened before training is conducted, see also Quality Assurance section. Some of the key systems elements are discussed below.

Methods for sustaining health worker performance after IMCI training

Training alone is unlikely to result in sustained changes in health worker performance. WHO currently advocates a single follow-up visit to health workers approximately one month after IMCI training. At this visit, health workers are observed managing sick children using the IMCI patient checklist, and feedback given directly on case management practices. In addition, several other facility supports, such as essential drugs and equipment are checked. This method encourages the use of these data to solve problems immediately. In several countries, this approach has been adapted as a supervisory method that can be applied regularly over time by supervisors. Critical to a supervisory approach is that health worker practice is observed in a standardized way, that problems are discussed, and health workers are encouraged to solve problems themselves with locally available resources. Supervisory methods should use existing staff and systems. Supervisory methods can allow other factors that may be important for improving case-management practices, such as the organization of work at health facilities, staff housing and morale, and strategies for improving the availability of essential drugs to be investigated. If regular clinical supervision is not feasible, then there are other methods, such as self-assessment tools, that have been tested in some settings. See QA section.

Regular monitoring and evaluation of IMCI at health facilities and in communities.

It is important that the quality of care at health facilities and in communities be monitored and evaluated over time following IMCI training. A limited set of core indicators for measuring the quality of care at health facilities and in communities has been developed by the interagency working group on IMCI monitoring and evaluation, coordinated by WHO. It is hoped that this core list of indicators will be used widely – these indicators were selected to be valid, reliable and measurable, see M&E section.

Community indicators are usually based on the community and household behaviors that are targeted by the program and may include measurements of program inputs and outputs as well as behavioral outcomes (see also Component 3 and M&E section). A number of methods have been used in developing countries, including 30 cluster KAP surveys, lot quality assurance sampling surveys, and census-based monitoring systems. Baseline data is essential for planning activities and tracking progress over time. It is important that data collection methods are feasible in the local context, and that community and district staff be involved in the process of analyzing, interpreting and using data for making program decisions.

Facility-based IMCI indicators measure information on how children are assessed, classified, treated and caretakers are counseled. Direct observations of practice are required to measure these indicators, as well as exit interviews with caretakers of young children when they leave facilities. In addition, a number of “systems” indicators which look at the availability of essential drugs, supplies, equipment, vaccines and supervision are included. Collection of these data at baseline can help plan program activities and target areas where gaps are identified.

A number of methods can be used to collect this type of facility information. Regular data for monitoring can be collected from routine visits using checklists, or from routine reports. Data for evaluation purposes are usually collected using a health facility survey approach. Ideally, monitoring and evaluation activities will be conducted in close collaboration with district health staff, with an emphasis on collecting limited essential data that can be used for planning and program management.

Availability of Essential Drugs, Supplies and Equipment

Without essential drugs, vaccines and some simple equipment, IMCI cannot be effective. Baseline assessments (health facility survey, review of routine data, review of supervisory reports) should review these elements. A list of essential drugs, supplies and equipment is available in IMCI health facility survey instruments developed by the interagency working group on monitoring and evaluation of IMCI. Where gaps are identified, other assessment methods can be used to identify logistics system problems (see management and logistics section) – and to identify possible strategies for improving availability. Methods for reviewing and strengthening the drug supply system are also available. A variety of cost-recovery methods have been tested at local levels in order to generate income to purchase essential supplies.

Improving capacity for district planning and management of IMCI activities

It is important that district staff have the capacity in the long term to plan and budget IMCI activities at health facility and community levels. In order to do this, they need to understand how to monitor and evaluate IMCI program activities, and to have experience implementing it at the facility and community levels. It is particularly important that they understand the elements important for sustaining performance over time using methods such as clinical supervision and feedback, regular monitoring of performance, and participatory community methods. PVOs are well placed to involve district staff in program implementation, and to work with them to develop IMCI work plans and budgets. By clearly linking with district staff, they will help build local capacity for management and planning in the long term and help ensure that lessons learned in the project areas are applied elsewhere.

Improved Referral Practices and Capacity

Sick children identified as being severely ill by the IMCI approach need to be referred immediately from a first level facility to a referral site. This includes: 1) Urgent referral for any child with general danger signs (convulsions, inability to drink, persistent vomiting or an unconscious or lethargic child) or with combinations of signs and symptoms that identify severe illness; and 2) Non-urgent referral for any child needing specialized management (i.e. trauma) that is not identified by the IMCI classification, or child with coughing greater than 30 days or fever more than 7 days. The IMCI guidelines assume the availability of referral. Clinical guidelines for referral level care of severely ill children have been developed by WHO and can be used to train medical staff providing referral services; these guidelines provide clinical standards for monitoring and evaluating the quality of referral care.

However, there are often barriers to referrals in developing countries. These barriers are not always understood, but they include; a lack of transport, lack of funds, perceived poor quality of referral care, perceived severity of the illness, lack of home care for children, and decision-making processes in the household. In settings where referral is difficult it is important that data are collected to investigate referral barriers, so that strategies for addressing the problem can be elaborated, if possible. In some cases, a behavior change intervention will be required to change practices of caretakers or the counseling practices of health workers. In other cases, it may be necessary to train auxiliary health workers to manage some types of severely ill children. Methods for collecting this type of information (which include qualitative research methods and operational research studies), and then elaborating strategies to change referral practices are described in the BCI section. There are limited data available on approaches to improving referral practices in developing countries.

In order to improve the quality of care provided at referral sites many of the same systems elements described above for first level health facilities are important; high quality training, effective supervision, regular monitoring and evaluation, and a supply of essential drugs, vaccines and supplies.

Component 3: Improving family and community health care practices

Improving the quality of care at health facilities by itself will not be effective in realizing significant reductions in childhood mortality and morbidity because numerous caretakers do not seek care at facilities. As demonstrated by mortality studies using the Pathway to Survival, many caregivers do not recognize severe danger signs requiring immediate treatment, prefer home care if assumed feasible, and often seek care from non-formal or private community providers. Many child deaths continue to occur at home. Care seeking for highly cost-effective preventive services, such as immunizations, vitamin A and growth promotion services are critical to reducing morbidity and mortality from a number of childhood illnesses, and communities need to provide access to these services. Community IMCI is in the introduction or early implementation phase in the majority of countries, and PVOs have the greatest opportunity to influence the technical content and direction and the pace of implementation of this component by working with their national and district MOH counterparts.

Key Family Practices:

WHO and UNICEF developed 16 Key Family Practices – based on scientific evidence and country experience - that define the target behaviors for C-IMCI. (*see table IMCI-1*) The Key Family Practices are grouped into four categories of practices that promote physical growth and mental development, prevent disease, facilitate appropriate home care, and facilitate care seeking behaviors. Each country adapts and tailors these practices to respond to specific country situations including different levels of

health systems performance, emergencies, and HIV/AIDS. Definition of a limited number of child health behaviors as a focus for all community behavior change activities can help maximize the potential impact and assure consistency between different project areas. See also BCI section.

Table IMCI-1. List of Key Family Practices adopted by WHO and UNICEF

KEY COMMUNITY IMCI FAMILY PRACTICES

For physical growth and mental development

- Breastfeed infants exclusively for at least four months and, if possible, up to six months. (Mothers found to be HIV positive require counseling about possible alternatives to breastfeeding.)
- Starting at about six months of age, feed children freshly prepared energy and nutrient rich complementary foods, while continuing to breastfeed up to two years or longer.
- Ensure that children receive adequate amounts of micronutrients (vitamin A and iron, in particular), either in their diet or through supplementation.
- Promote mental and social development by responding to a child's needs for care, through talking, playing, and providing a stimulating environment.

For disease prevention

- Take children as scheduled to complete a full course of immunizations (BCG, DPT, OPV, and measles) before their first birthday.
- Dispose of feces, including children's feces, safely; and wash hands after defecation, before preparing meals, and before feeding children.
- Protect children in malaria-endemic areas, by ensuring that they sleep under insecticide-treated bednets.
- Adopt and sustain appropriate behavior regarding prevention and care for HIV/AIDS affected people, including orphans.

For appropriate home care

- Continue to feed and offer more fluids, including breastmilk to children when they are sick.
- Give sick children appropriate home treatment for infections.
- Take appropriate actions to prevent and manage child injuries and accidents.
- Prevent child abuse and neglect, and take appropriate action when it has occurred.
- Ensure that men actively participate in providing childcare, and are involved in the reproductive health of the family.

For seeking care

- Recognize when sick children need treatment outside the home and seek care from appropriate providers.
- Follow the health worker's advice about treatment, follow-up and referral.
- Ensure that every pregnant woman has adequate antenatal care. This includes having at least four antenatal visits with an appropriate health care provider, and receiving the recommended doses of the tetanus toxoid vaccination. The mother also needs support from her family and community in seeking care at the time of delivery and during the postpartum and lactation period.

Community IMCI Framework

CORE, CSTS, and BASICS endorse an integrated C-IMCI framework to enable organizations to better communicate and plan public, private sector, and household interventions that can improve child well-being and reduce child mortality and morbidity in communities. The framework provides a common language through which organizations can communicate to develop collaborative activities for child health. The framework is descriptive instead of prescriptive and is based on the assumption that C-IMCI will differ from country to country and within countries to respond to local opportunities and needs. A document explaining the framework in detail, entitled “Reaching Communities for Child Health and Nutrition: A Framework for Household and Community IMCI”, April 2001, by Peter Winch et al, is available (see Annex – IMCI references).

C-IMCI is the optimization of a multi-sectoral platform for child health and nutrition that includes three linked requisite elements:

Element 1: Improving partnerships between health facilities and the communities they serve. (focuses on health facilities and outreach clinics, especially in the public sector)

Element 2: Increasing appropriate and accessible care and information from community-based providers. (focuses on private and informal sectors, including volunteers)

Element 3: Integrating promotion of key family practices critical for child health and nutrition. (focuses on household and individual practices).

Each of these elements and the platform will be described:

Element 1: Improving partnerships between health facilities and the communities they serve

In spite of improved service quality of IMCI trained health providers, caregivers often underutilize the offered services. Element 1 emphasizes the importance of partnerships (formal or informal) between health facilities and communities where both have roles, responsibilities and accountabilities to each other.

Several interventions can improve these two-way partnerships:

- Facility staff can reach out to the community and attract more clients through improved counseling by health workers, increased outreach by health workers and greater accountability for quality of services. Health facility staff can be more involved in the supervision and training of community health workers.
- PVOs can work with the community can advocate that caregivers increase usage of facilities where services have been improved, provide community-based data to health facilities to plan appropriate promotional and outreach events, and help manage the facility.

Element 2: Increasing appropriate and accessible care and information from community-based providers

In many places, health facilities are not accessible or are not the first choice in community level care for ill children. Caretakers often seek immediate care from community health workers or other voluntary workers, private providers, traditional healers, traditional birth attendants, shopkeepers, pharmacists or relatives – persons who enjoy community prestige and are the closest providers of care.

In many PVO programs, CHWs are trained to provide basic curative care where other sources of care are not accessible. In all these types of circumstances, interventions are needed to:

- Improve the quality of care provided to sick children (by upgrading the skills of community-based practitioners, and/or using simplified algorithms for case management, and ensuring supply of essential drugs at the community level).
- Improve referral of sick children from the community-based providers to the 1st level facility through feedback loops between community-based private providers, facility-based providers and communities. Communities can help in the establishment of community-based emergency transport systems and community revolving funds or insurance schemes for health emergencies.
- Decrease harmful practices such as frequent use of injections, unsafe treatments, over-prescription of antimicrobials and antibiotics by private providers.
- Increase the role of community-based providers (i.e. drug sellers) in the promotion of preventive practices (e.g. handwashing, condoms)

CHW Training in Case Management

This approach is possible in settings where MOH policies are supportive, and where community health workers are permitted to give simple drugs in the community. PAHO and some PVOs have developed simplified IMCI algorithms and training materials for community health workers to promote case management of simple diarrhea, counseling for home care, and referral to the first level facility. CHW training for case management of all IMCI diseases using the core IMCI technical content has been developed by CARE and used in Kenya. Follow-up after the Kenya CHW training indicated that the performance of CHWs was consistent with IMCI standards. Issues described earlier related to Component 2 (supervision, quality control, drug supply) are applicable to this approach. Some existing community health worker training materials integrate aspects of sick child management and may be useful in some settings. For example, the WHO ARI materials for CHWs, address the overlap in the clinical presentation and treatment of pneumonia and malaria.

Element 3: Integrating promotion of key family practices critical for child health and nutrition

The third element emphasizes the importance of the key family practices and the need for effective communication and behavioral change packages for their promotion and adoption in the home and in the community. This is often more traditionally recognized as the key strategy for C-IMCI. Key interventions include:

- Using integrated client-centered behavior change strategies based on integrated assessments or surveys. These strategies take into account who is to perform the behaviors, the time (dry season versus wet season, continues versus periodic, etc.), and the place (household, community, health facility) they are to be performed.
- Using multiple channels (e.g. local radio, mother's groups, CHWs, community committees, local government) to promote key messages.
- Developing methods for participatory community assessment and planning, such as the IMCI tailored PRA methodology advocated by the MOH in Uganda or "community dialogue" methodology promoted by UNICEF.

When planning this element a structured process needs to be followed (see BCI section). The key steps include: an assessment using existing information and new data collected through quantitative and qualitative methods; selection of target audiences; prioritization of health behaviors and identification of barriers to changing these behaviors; development and implementation of strategies using local groups and individuals in a collaborative and participatory fashion. Further applied research is critical to guide better practices related to this element. Many CHWs or other community-based resource persons who are mobilized to promote messages are often left alone for long periods of time without supportive mentoring or supervision. Strategies for motivation and retention of community resource persons need to be developed. If technical updates are not regularly provided to them, there is potential for long-term loss of effectiveness. Many organizations still struggle with how to effectively promote multiple behaviors, how to maintain behavior change over time, and how to scale up these community-based interventions to regional and national levels.

Multi-sectoral platform:

The multi-sectoral platform, including partnerships with other key ministries (e.g. Nutrition, Agriculture, Water and Sanitation, Local Government) and other key district or community projects and activities (e.g. income generation, civil society organizations), facilitates inclusion to promote adoption of key family practices. Multiple actors and sectors are critical to C-IMCI. Their efforts can help to address factors that facilitate or hinder adoption of new practices and behaviors that are promoted by C-IMCI, connect broader development efforts to the key family practices, and promote the active role of local governments and associations in health. This platform is critical for sustainability of C-IMCI efforts.

Examples of connections that can be reinforced through the platform include:

- Improved water and sanitation linked to the promotion of handwashing.
- Income generation activities linked to the promotion of bednets.
- Income generation for men linked to men's involvement in reproductive and child health.

Principles:

Several principles guide the C-IMCI Framework:

1. C-IMCI can be implemented at national, district, and/or community levels, as appropriate. Ideally, C-IMCI has the most value when implemented at all levels, but it is valuable at any level even when C-IMCI is not yet operational at the national level.
2. C-IMCI can be implemented by multiple actors or by a single organization. If properly orchestrated, collective groups can contribute the most toward an HH/C IMCI vision, but any organization, given adequate human and financial resources can make a difference.
3. HH/C IMCI recognizes the importance of curative and preventive interventions in the community for reducing child mortality and morbidity. C-IMCI places a high value on promoting an environment where children can grow with minimum risk to disease, heal rapidly from illness, and thrive from reduced presence of disease.
4. C-IMCI can be implemented with or without IMCI Components 1(Health Worker Skills) and 2 (Health System Supports). All three IMCI components contribute to an effective life-saving strategy, but where necessary, C-IMCI can function independently and still make a major contribution to improved child health.

5. All 3 elements are requisite for C-IMCI (except element 1 if facilities are inaccessible).
All of the proposed elements are complementary to improving child health in the community, but if health facilities are not existent within easy access of the community, there is little alternative for immediate action, except through advocacy for increased facilities.
6. Phased introduction of promotion of key family practices is acceptable.
A communication and behavioral change strategy needs to be constructed according to a seasonal calendar that matches local morbidity trends, and in a sequence that builds upon progress made and confidence gained at the individual, household and community levels.
7. Phasing of introduction of the three elements is acceptable.
Prioritization for implementation of elements should be done based on assets and needs analysis at district and community levels.

C-IMCI - National and District Planning

Once IMCI is adopted as a national strategy, PVOs may assist with early implementation activities in collaboration with national and district health staff. These activities might include assistance to adapt the IMCI training materials, develop IMCI action plans, develop C-IMCI guidelines, and collect baseline data. In most countries, a national level working-group on C-IMCI exists. PVOs have the opportunity to play a leadership role in these groups to share their community-based child survival lessons learned, network the PVO and NGO community around child health, and better link the PVOs/NGOs to the MOH strategy. At the district level, leadership of the NGOs is even more critical to support the district health team to map activities with other NGOs and community stakeholders, develop detailed plans and budgets for expanding child health interventions, build capacity of district, sub-district, and communities to implement action plans, and report key implementation process and impact indicators.

When IMCI is not a national strategy

When IMCI has not yet been adopted PVOs may play a role in advocating for the adoption of the approach. If a decision is made to implement program activities in a limited number of technical or program areas, then the disease-specific standard case management guidelines should be taken from the IMCI guidelines, since these are the most technically up to date. Program activities to strengthen elements of the health system and to design and develop community-based strategies can proceed before facility-based activities.

Once IMCI is adopted as a national strategy, PVOs may assist with early implementation activities in collaboration with national and district health staff. These activities might include assistance to adapt the IMCI training materials, develop IMCI action plans, and collect baseline data.

4.f Acute Respiratory Infections (ARI)

It is estimated that over two million deaths occur from acute respiratory tract infections in under fives annually. Most of these deaths occur in children in developing countries. Acute respiratory infections (ARI) are one of the most common reasons for pediatric consultations at health facilities everywhere in the world. ARI include common colds, ear infections, sore throats, bronchitis, and several other conditions, but the focus of interventions should be on pneumonia because the vast majority of all ARI-associated deaths in children under five years of age are due to pneumonia. The most common causal pathogens for pneumonia are *Streptococcus pneumoniae*, *Haemophilus influenzae* and *Respiratory syncytial virus*. Whereas the incidence of ARI in children is about the same in developed countries as in developing countries, the incidence of childhood pneumonia is much higher in developing countries than it is in developed countries.



Essential Elements

- Prevention
- Standard Case Management

Most acute respiratory infections are viral, mild, and self-limiting. Most children with ARI do not need antibiotics. In fact, the use of antibiotics for common colds and coughs is not only inappropriate and costly, but may also accelerate the emergence of resistant bacteria. Thus, ARI is important from the perspective of rational drug use and appropriate pneumonia SCM of children seeking care from health workers.

Haemophilus influenzae type b (Hib) is a leading cause of acute lower respiratory infection among young children especially in developing countries. While it is difficult to assess the global burden of Hib disease, it is estimated that over 500,000 children a year die from Hib pneumonia. *Respiratory Syncytial Virus* (RSV) is an extremely important pediatric pathogen, is highly contagious and infects 50% and 100% of children throughout the world during the first and second years of life respectively. RSV is estimated to cause about 900,000 deaths a year, mainly in infants and young children.

Prevention of Lower Respiratory Tract Infections

Immunization is a highly cost effective strategy for reducing the incidence of pneumonia from some pathogens. Immunization with measles and pertussis vaccines, both routinely used in developing countries, reduces the incidence of pneumonia associated with these conditions. In some countries, consideration is being given to including *Haemophilus influenzae type b* vaccine, already widely used in developed countries, into the childhood immunization schedule. A RSV vaccine will soon be available and other vaccines for pneumococcal pneumonia are in development. If successfully introduced, it is estimated that these vaccines could reduce child deaths from pneumonia considerably.

Exclusive breastfeeding, maintaining adequate vitamin A status, and effective complementary feeding and nutritional management are all associated with a reduced incidence of severe pneumonia and death in young children, see nutrition section.

Although there are a number of specific risk factors for pneumonia, the efficacy and feasibility of interventions to address these risk factors have not yet been demonstrated. There is evidence of a

causal association between indoor smoke and childhood pneumonia, although no convincing data to show that interventions to reduce indoor pollution can reduce childhood pneumonia incidence or mortality. Similarly, there is no evidence that communication for behavior change can reduce exposure to indoor smoke. Thus, smoke and pneumonia is considered to be an important research issue, rather than a focus for intervention activities. More general preventive child survival interventions, such as immunization, breastfeeding promotion, and nutrition interventions, will reduce the incidence of pneumonia and are part of the comprehensive IMCI approach.

Pneumonia Standard Case Management

The major impact on pneumonia mortality will be achieved through prompt and effective treatment of pneumonia episodes, rather than through prevention. Most childhood pneumonia in developing countries is due to bacterial infection or superinfection (mostly *Streptococcus pneumoniae* and *Haemophilus influenzae*). If treatment is started promptly, most cases of pneumonia can be effectively and cheaply treated with oral antibiotics. The challenge is getting oral antibiotics to all children who need them, and then treating effectively (with the right drug, at the right time), while avoiding the use of antibiotics in children who do not need them. To address this problem, WHO developed a Standard Case Management (SCM) protocol which enables peripheral health workers to detect childhood pneumonia based on a few clinical signs, without the use of a stethoscope, chest x-ray, or laboratory facilities. This approach is now an integral part of IMCI. Several studies have demonstrated a substantial reduction in under-five mortality using peripheral health workers trained in pneumonia SCM.

Before beginning a pneumonia SCM intervention, the effectiveness of existing pneumonia SCM services and barriers to implementation need to be reviewed. The goal of this intervention is to reduce mortality in children under five years of age by providing SCM early in the illness for a large proportion of all episodes of pneumonia. The following activities are essential as a package for addressing pneumonia SCM.

- **Improving skills of health workers:** Appropriate assessment, classification, treatment, referral, and counseling for childhood pneumonia by health workers.
- **Improving health system support:** Strengthening health system elements required to maintain facility and community level activities; an adequate supply of essential drugs and equipment; effective supervision; regular monitoring and evaluation; referral care; district planning and management.
- **Improving family and community practices:** Adequate access of sick children to pneumonia SCM; AND Prompt recognition of pneumonia signs by caretakers, and prompt care seeking from appropriate health providers.

Improving Skills of Health Workers: Appropriate assessment, classification, treatment, referral and counseling by health workers.

At the primary care level, the IMCI guidelines provide health workers with a clear protocol for assessment, classification, treatment of pneumonia, and counseling about home care. The IMCI algorithm also gives guidance on the pneumonia standard case management of potential treatment failures. Where these guidelines are not being used, they are available from WHO and should be obtained and followed. Counting the respiratory rate of infants and young children using a watch or

other timing device, is the cornerstone of the SCM approach since respiratory rate has proved to be a relatively sensitive and specific measure of respiratory distress. All health workers who assess infants and children for pneumonia require an appropriate timing device to assess for fast breathing.

The overlapping clinical presentation of pneumonia and malaria is an important consideration in all areas where childhood infection with malaria is a problem. A proportion of children with fever will also meet a pneumonia case definition (cough or difficulty breathing, and fast breathing or chest in-drawing), and almost all children meeting a pneumonia case definition also have fever or a history of fever. Treatment of malaria alone may result in death from pneumonia, thus all malaria protocols for children at the level of the community, drug retailer, and health facility should incorporate or address case management for pneumonia, see malaria section. In areas with falciparum malaria transmission, depending on treatment protocols and drug sensitivity, treatments for pneumonia alone in children who also have malaria, may result in death from malaria. The IMCI approach recommends a first line antibiotic (cotrimoxazole) as the treatment for children with possible pneumonia and malaria.

Failure to give a correct dose of antibiotics, or complete a course of treatment in children with pneumonia, will increase the risk of treatment failure and the development of antibiotic resistance. Thus, it is important for health workers to provide effective counseling about the use of antibiotics to caretakers. Counseling about when to return to the health worker, the importance of continued feeding and fluids, and recognition of danger signs are also important. Good health-worker communication skills are essential for all effective case management interventions, see IMCI and BCI sections.

Case management training is most frequently conducted for first level health workers based at health facilities. Training materials for first level health workers are usually based on the standard IMCI materials. In areas with limited access to health facilities, community health workers have also been trained in PCM, and in IMCI. In some settings, other categories of provider, such as pharmacists or drugs vendors have also been trained to conduct PCM. Training materials for community-based workers need to be adapted and simplified. It is essential that all case management training includes clinical practice, see IMCI section.

Improving Health System Support: Health System Strengthening to Support Pneumonia SCM.

Health system strengthening for IMCI should address weaknesses in; clinical supervision; logistics (essential drugs and equipment); monitoring and evaluation of the quality of care provided; and provision of effective referral systems.

In some places it may be possible to strengthen or develop a routine surveillance and reporting system. The estimated incidence of cases can be used to monitor the efficacy of a PCM intervention. In most sites with high under-five mortality, the incidence of algorithm positive pneumonia is most likely going to be in the range of 0.3 to 0.6 episodes per under-five per year. If programs estimate the average incidence of "lower respiratory infection" to be 0.45 episodes per infant/child under five years of age per year, about the same number of cases should be seen and treated. Methods for monitoring and evaluating the quality of clinical care that can be used for problem solving and planning include supervisory-based checklists, health facility assessments, and self-assessment methods. At the community level, data on key household and community behaviors are usually collected using surveys (30 cluster or lot quality assurance sampling methods), and sometimes census-based household listing.

Systems for referral of severely ill children need to be reviewed and strategies developed for improving referral practices if necessary. In many cases an assessment of referral practices and of barriers to referral will require the collection of both qualitative and quantitative data at health facilities and in communities. The quality of referral care provided should also be reviewed. In some cases, referral may be difficult or impossible, and it may be necessary to train first level health workers to provide more advanced pneumonia care – such as the use of second-level antibiotics, see IMCI and M&E sections.

Improving Family and Community Practices: Adequate access to pneumonia SCM.

Utilization of health services tends to decrease with increasing distance from health providers. There is also a relationship between distance from a facility and delays in seeking treatment. If visiting appropriate providers involves substantial costs in time or money, then child caretakers are unlikely to promptly seek care, even if they recognize signs of pneumonia. Caretakers frequently use home remedies or untrained providers such as traditional healers or drug vendors. Care from trained providers is often sought only after the initial treatment has failed or when signs of more severe disease are recognized. A delay in starting effective treatment for pneumonia will increase the risk of death.

Adequate access is often defined as; being able to travel to a health provider in one hour or less; or as living within three to five kilometers of a provider. However, child survival programs need to define access based on local conditions and care-seeking practices. If access is limited, then there is a need to consider alternative strategies for increasing access. Alternatives most frequently include increasing the availability of health workers (at low level health facilities, as well as CHWs or other community providers) who can provide standard case management services; and improving the availability and the affordability of effective antimicrobials. In settings where drugs are only available from drug sellers, pharmacists or other providers, and where access to health workers is limited, some programs have trained other drug providers to assess and classify pneumonia and to give antibiotics when necessary.

Training community health workers in pneumonia SCM is an appropriate way to increase access to case management, if this approach is potentially sustainable and approved by the MOH. Several intervention trials using CHWs to treat pneumonia and educate caretakers have shown that this approach is feasible and that it is possible to have a substantial impact on under-five mortality. Most of these studies were conducted in areas with poor access to case management services at first level health facilities. The successful treatment of childhood pneumonia by CHWs is also likely to increase CHW motivation and credibility. The training and deployment of large numbers of CHWs may however, be expensive, difficult to monitor and sustain, and not easily replicable. Thus, limiting the numbers of CHWs trained and ensuring that systems are in place to allow sustainable practice are important. Simplified PCM algorithms and training materials are needed for CHWs, see IMCI section.

Recognition of pneumonia in the home, and care seeking from an appropriate provider.

There is no convincing evidence that home care for children with upper respiratory infections can prevent pneumonia, or that home care without antibiotics for children with pneumonia can reduce the risk of death. To appropriately treat pneumonia, a caretaker must go outside the home to obtain antibiotics from a health worker. At the household level, caretakers need to recognize symptoms and danger signs early (*i.e., fast or difficult breathing, child looks unwell, is not eating or drinking, lethargy or change in consciousness, vomiting everything, high fever*), and then seek appropriate care.

Harmful traditional practices may need to be addressed in some communities. Caretakers often delay care seeking, especially if visiting appropriate health providers is time consuming or expensive. Communities can play a role in facilitating transport and credit payment schemes at the health facility or with a CHW.

Community-wide strategies to improve illness recognition and care seeking are appropriate only after (or in areas where) the population has adequate access to pneumonia SCM. Communication strategies should be based on qualitative (ethnographic) investigation of local beliefs, practices, and vocabulary for pneumonia for both young infants and older infants/children. CHWs and other community-based staff can also play a role in educating caretakers in illness recognition and appropriate care seeking. Key behaviors to improve pneumonia care seeking include prompt recognition of signs of pneumonia by caretakers, prompt care seeking, and identification of an appropriate health worker or facility from which care should be sought, see IMCI and BCI sections.

Pneumonia-associated deaths in older infants and children can occur within two to four days of the onset of lower respiratory signs. Delaying care seeking from an appropriate health provider increases the risk of death. The most important signs of pneumonia in older infants and children are cough with difficult breathing, and cough with fast breathing. When chest in-drawing is locally understood and recognized, then caretakers can also be educated to promptly seek care for any infant or child with this sign of severe pneumonia. When chest in-drawing is not locally understood and recognized, then communities need to be trained in doing so.

Over 30% of pneumonia-associated deaths in children under five occur within the first two months of life. Progression of illness in this age group is often particularly rapid. It is thus important for programs to target and design effective strategies and messages about recognition and care seeking for young infants. Caretakers must be reached before or within a few days of the birth of an infant (e.g. through TBAs). Because the signs of pneumonia in young infants are different than those in older infants and children, messages about recognition should be designed specifically for this age group. In addition to difficult breathing, and cough or cold with fast breathing, non-specific danger signs such as not feeding or feeding poorly should prompt mothers to seek care for a young infant.

Other important home practices for managing children with pneumonia include compliance with treatment instructions (dosage and duration), and continued feeding and increased fluids during and immediately after the illness. In addition, the caretakers of all infants and children should understand other key household practices such as providing appropriate nutritional management (exclusive breastfeeding and complementary feeding); adequate consumption of micronutrients (especially iron and Vitamin A); and the importance of receiving a full course of childhood vaccinations in the first year of life, see IMCI and BCI sections.

4.g Control of Diarrheal Disease (CDD)

Over two million children die each year in developing countries from three main types of diarrheal disease: acute watery diarrhea, dysentery (bloody diarrhea), and persistent diarrhea (diarrhea lasting 14 days or more). It is estimated that in developing countries, children between 6 and 11 months of age have approximately five episodes of diarrhea



Essential Elements

- Prevention
- Standard Case Management

per child each year, and that children 12 months to five years of age have approximately 2.6 episodes of diarrhea per child each year. Recent reductions in child diarrheal disease mortality rates are primarily a result of successful oral rehydration therapy (ORT) for the prevention and treatment of dehydration due to acute watery diarrhea. Data suggest that up to 60 percent of child diarrheal disease mortality is attributable to dysentery and persistent diarrhea. Oral rehydration therapy alone will not have an impact on mortality from dysentery or persistent diarrhea for which alternative case management strategies are needed. Although there is clear evidence of the reduction of childhood diarrheal disease mortality rates in recent years, there is no evidence to show a parallel reduction in incidence of the disease; more attention to the primary prevention of diarrhea is needed.

There is a strong association between childhood diarrhea and reduced nutritional status; children with diarrhea are more likely to become malnourished; and children who are malnourished are predisposed to getting diarrhea and dying from the disease. Children with a low vitamin A status are more likely to have a severe clinical course and to be at higher risk of death from all categories of diarrhea; improving vitamin A status can significantly reduce diarrhea-specific mortality.

The key elements of diarrhea programs are primary prevention of diarrhea; maintaining and increasing use rates for ORT; ensuring proper nutrition of healthy and ill children; and promptly diagnosing and treating dysentery and persistent diarrhea.

Acute Watery Diarrhea

Acute watery diarrhea is by far the most common cause of diarrhea in developing countries. Death from acute watery diarrhea occurs from severe dehydration, which may develop rapidly. Most cases of acute watery diarrhea can be managed with oral rehydration therapy (using oral rehydration solution or an effective home fluid) and continued feeding. Only severely dehydrated children need intravenous therapy. Most severe dehydration is preventable by the early use of oral fluids. Simple watery diarrhea does not require the use of antibiotics or antispasmodic agents; overuse of these drugs is a problem in many countries. Diarrhea standard case management guidelines are a component of the IMCI algorithm, and are revised from previous versions of the diarrhea algorithm included in CDD materials. Health workers at both the health facility and community levels, as well as other types of community providers can be trained to assess, classify, treat and refer children with diarrhea. Improving home case management by caretakers remains an important element of diarrhea programs since access and availability of health facilities or trained staff is often limited.

Dysentery (bloody diarrhea)

Approximately 10% of diarrheal episodes in children under 5 years of age contain visible blood in the stool; these are responsible for about 20% of diarrhea-associated deaths in this age-group. *Shigella*

species are responsible for at least half of all episodes, as well as the majority of those cases that are fatal. The case-fatality ratio from *Shigella* dysentery in Africa can be as high as 10%. Treatment with an effective antibiotic will reduce the duration of the illness and reduce the risk of serious complications and death. Complications are more frequent in children less than 5 years of age, particularly if there is a recent history of measles, or if the child is malnourished. Diarrhea SCM emphasizes the use of an appropriate antibiotic, increased fluids, continued feeding, and follow-up in two days. The antibiotic is changed to a second-line antibiotic if there is no improvement in two days. There is widespread resistance to cotrimoxazole (a common first-line antibiotic) and increasing resistance to nalidixic acid (a common second line antibiotic). Fluoroquinolones are being used in some countries although this class of drug is expensive. Antibiotics need to be selected based on available drug resistance data and be consistent with national policies and guidelines.

Persistent diarrhea

Infants and children with persistent diarrhea have an increased risk of malnutrition and death. The risk of death is higher if dehydration is present. Persistent diarrhea is associated with up to 45% of all deaths from diarrhea. Antibiotics are not an effective treatment strategy for this problem. The primary management strategy is nutritional – usually with a reduced lactose diet and supplemental micronutrients. The WHO IMCI guidelines include current feeding recommendations for persistent diarrhea. Effective nutritional counseling by health workers is the most important management strategy for persistent diarrhea.

Prevention of Diarrhea

Several interventions have been demonstrated to be effective in preventing diarrhea, and all of these are components of an integrated approach to child health. Each will be discussed briefly.

Nutrition interventions, see nutrition section.

Early Breastfeeding: Infants who are not breast-fed during the first two months of life have been demonstrated in several studies to have at least a three-fold increase in diarrhea morbidity and mortality over infants who are either partially or exclusively breast-fed

Exclusive breastfeeding for 6 months: Infants who are exclusively breast-fed (defined as an infant who is given no other liquid or solid other than breast milk) have a median relative risk of diarrhea 3.5-4.9 times lower than that of infants who are not exclusively breast-fed in the first 6 months of life. The median risk of death from diarrhea during the first 6 months of life for infants who are partially breast-fed compared to infants who are exclusively breast-fed is estimated to be 8.6.

Appropriate complementary feeding from about 6 months in addition to breast feeding: Breast milk alone does not usually provide all nutrients needed by an infant after 6 months of age. Children who are not fed enough calories and nutrients are at risk for malnutrition, which puts them at higher risk for death from all causes of childhood mortality, including diarrhea.

Measles immunization: Diarrheal diseases are estimated to comprise about 25% of all measles mortality. Effective measles vaccination programs will therefore reduce the incidence of diarrhea and mortality from the disease.

Hygiene promotion, sanitation and water supply: BHR/PVC's resources are insufficient to fund water supply and sanitation programs. However, it recognizes their effectiveness and encourages coordinating with complementary programs funded with other resources or operated by other organizations.

Effectiveness of Interventions

Field programs in developing countries around the world have successfully prevented diarrhea in young children by using a handful of simple interventions that improve access to safe water sources and sanitation facilities ("hardware"), and promote hygiene behaviors.

Interventions aimed at improving hygiene behaviors, such as hand washing, can significantly reduce the prevalence of diarrheal disease independent of any hardware improvement (median reduction in the prevalence of diarrheal disease with hand washing was 35%). Improved water quality and quantity effectively reduce the prevalence of diarrheal disease (15-20% reduction in prevalence), but when implemented alone will have the least impact of all interventions. Although expensive, an integrated approach to reduce the prevalence of diarrheal diseases by combining hardware improvements with hygiene promotion is likely to be the most effective. Likewise, hygiene improvements alone can be highly effective and less costly.

Construction of water supply and waste disposal systems are beyond the scope of child survival projects. However, if water and sanitation infrastructure exist in an intervention area or can be provided through other means, water supply and sanitation hardware should be linked to the diarrhea interventions, in particular with hygiene behavior promotion.

Hygiene, sanitation and water supply interventions

Hygiene promotion, sanitation and water supply interventions address the most common behavioral and environmental risk factors of diarrhea:

- Household-level behaviors which cause fecal-oral transmission of diarrhea-causing pathogens and contamination of drinking water and food
- Lack of access to safe water sources and sanitation facilities
- Poor quality of water supply and sanitation services

Interventions to address these risk factors include:

Household-level

- Behavior change communication (BCI) to improve hygiene behaviors
- Water source protection
- Construction of latrines with features that promote use (for example, safety, privacy, odor reduction, and fly trapping)
- Use of narrow-neck containers to store water
- Water disinfecting or filtering (home chlorination of water low cost and feasible and effective)
- Measures to protect food from flies

Community-level

- Construction of small water supply systems (for example, protected public wells, wells with mechanical pumps, spring capping, gravity water supply system with public stand pipes)
- Chemical water treatment
- Construction and maintenance of public latrines
- Social marketing of soap and water disinfectants
- School sanitation and hygiene education
- Other micro-projects that promote hygiene and sanitation and generate income
- Organization of community events to promote hygiene, sanitation and safe water

Key Hygiene Behaviors

At the community and household levels, promotion of the following four key hygiene behaviors are most important for the primary prevention of diarrheal disease:

- 1) Proper hand washing at critical times (after defecation, after handling children's feces, before preparing food, and before feeding children/eating).
- 2) Sanitary disposal of human feces, especially the feces of young children.
- 3) Protection of drinking water from fecal contamination.
- 4) Protection of food from fecal contamination.

The following are strategies for changing hygiene behaviors.

- *Hygiene behavior change communication.* Hygiene behaviors for reducing fecal-oral transmission of diarrheal disease can be promoted using a number of community channels including; community health workers, community groups and organizations, mass media, social marketing, and counseling by health workers.
- *Community participation and action.* Community actions to prevent diarrhea, such as local production of contamination-proof water containers, latrine construction, or school hygiene programs, are important and can benefit from organizational support. Communities need to develop their capacity to take ownership of their actions. These include:
 - Working with all stakeholders and decision-makers from the start to identify issues and to develop solutions;
 - Implementing micro-projects that allow residents to put theory into practice;
 - Monitoring the progress of improved hygiene behaviors, sanitation and water supply.
- *Evidence-based programming.* BCI and community actions should be rooted in people's needs, address prevalent environmental and behavioral risk factors, and be adapted to the cultural context. Participatory action research and baseline data collection through KPC surveys are important steps in developing and implementing successful community-based hygiene promotion, sanitation and water supply interventions.

- *Collaboration with other sectors.* Many sectors outside of health can contribute to the health of communities. The health sector can play a leadership and advocacy role in promoting cross-sectoral collaboration.

Examples of how various sectors can help prevent diarrheal disease include:

- The *education* sector: by improving teaching methods and materials on food, water, excreta, personal and household hygiene, and helminth control;
- The *water and sanitation* sector: by including hygiene behavior change communication as a component of infrastructure construction programs;
- The *housing* sector: by providing credit for household water and sanitation improvements; and
- The *private* sector: by manufacturing and distributing safe water storage containers and soap for hand washing.

Improving Diarrhea SCM

Many cases of dehydration and diarrhea-associated malnutrition can be prevented in the home by the use of ORS or home available fluids and proper feeding during and after a diarrhea episode. Thus, many diarrhea-associated deaths can be prevented in the home and community without needing to seek care from health workers. Health workers need to be able to conduct diarrhea SCM, give intravenous fluids for severely dehydrated cases, or refer severely ill children to the next level health facility.

Diarrhea SCM Guidelines

Diarrhea SCM includes determining the duration of the diarrhea, determining whether blood is present, assessing the severity of dehydration and providing appropriate treatment and counseling based on the type of diarrhea and severity of dehydration.

IMCI guidelines: The IMCI guidelines contain the most up to date version of the diarrhea SCM algorithm. The IMCI approach also provides guidelines for the management of measles, which is associated with diarrhea. The diarrhea algorithm in the IMCI protocol made significant changes from the diarrhea SCM algorithm used previously by CDD programs in the following areas: the presence or absence of tears, dry mouth and tongue had poor sensitivity and specificity and were removed; the grading of sunken eyes was simplified; the skin pinch was further quantified so that it is measured on the abdomen with a time parameter; the classification of diarrhea was simplified so that any 2 signs listed in a box preceding classification are sufficient to classify; and SCM guidelines for persistent diarrhea were updated.

Treatment: Oral rehydration solution (ORS) remains the most effective strategy for preventing dehydration and treating mild or moderate dehydration in young children with watery diarrhea. The WHO-UNICEF standard ORS formula is still the most widely used packaged (by UNICEF and others) solution, and it has been demonstrated to be safe and effective. A number of locally available fluids (grain based soups and gruels, for example) have also been demonstrated to be effective for the prevention and treatment of dehydration due to watery diarrhea. The use of homemade salt-sugar solution (SSS) is not recommended because the correct preparation of SSS at the household level has been found to be difficult, sometimes resulting in dangerously high concentrations of salt. Anti-diarrheal agents and antibiotics are not effective for the management of watery diarrhea and should be discouraged as they are potentially dangerous; and inappropriate use of antibiotics is likely to contribute to antibiotic resistance.

Counseling: A key element of diarrhea SCM is counseling and follow-up. Careful consideration of how to train health workers to counsel effectively, and then operationalize counseling in the clinical setting is needed. Time constraints will strongly influence the feasibility of effective and comprehensive counseling. Information must be presented to mothers using appropriate local terms; formative/qualitative research is important (focused ethnographic surveys using qualitative methods have been used in a number of countries). For more information see the behavior change section A6. Key home care messages include giving ORS and/or home fluids; continued feeding during and after the episode; recognition of danger signs for returning immediately; and when to return for follow-up. If oral antibiotics are given for bloody diarrhea, then information on how to take the dose is given. Nutrition-specific counseling includes an assessment of breastfeeding practice and then counseling on breastfeeding if necessary; feeding counseling for children eating solids, based on locally available foods (the food box); and feeding recommendations for children with persistent diarrhea.

Training in Diarrhea SCM

Case management training is most frequently conducted for first level health workers based at health facilities. Training materials for first level health workers are usually based on the standard IMCI materials. In areas with limited access to health facilities, community health workers have also been trained in diarrhea SCM, and in IMCI. In some settings, other categories of provider, such as pharmacists, drugs vendors or traditional healers have been trained to conduct diarrhea SCM. Training materials for community-based workers need to be adapted and simplified. It is essential that all case management training includes clinical practice. Strategies for monitoring and evaluating the quality of case management provided by low level health workers should be included in program plans, as overuse of antimicrobials and anti-diarrheal agents is common, see IMCI and reference sections.

Improving Health System Support

Health system strengthening for diarrhea SCM should address weaknesses in clinical supervision; logistics (essential drugs and equipment); monitoring and evaluation of the quality of care provided; and provision of effective referral systems.

ORS can be provided through the government drug distribution system and through a variety of private providers using private distribution systems. Social marketing of ORS using private producers and distributors has been successful in some settings.

Strategies to improve quality of care should include a mechanism for reviewing case management practices of both facility and community-based providers using simple observations of practice. A system for giving feedback to providers and then solving problems locally using local resources where possible, is likely to be more sustainable and effective in the long term. It is particularly important that counseling practice be reviewed and that barriers to effective counseling be addressed.

Systems for referral of severely ill children need to be reviewed and strategies developed for improving referral practices if necessary. In many cases an assessment of referral practices and of barriers to referral will require the collection of both qualitative and quantitative data at health facilities and in communities. The quality of referral care provided should also be reviewed. In some cases, referral may be difficult or impossible, and it may be necessary to train first level health workers to provide care for severe dehydration, see IMCI and M&E sections.

Improving Family and Community Practices

Key home practices

At the household level, key home practices include:

- 1) The early use of available food-based fluids (except heavily salted soups or very sweet drinks) and/or use of oral rehydration solution (ORS), if available and affordable;
- 2) Continued breastfeeding if the child is breastfed; frequent feeding of small amounts of food during diarrhea, and catch-up feeding following the diarrhea episode.
- 3) Recognition of danger signs of severe illness (including dysentery and persistent diarrhea) that require immediate care from an appropriate provider.

There is now substantial evidence that aggressive continuation of feeding during diarrhea, with an emphasis on increased frequency of feeding to eight or more times daily, while reducing the amount being fed at each feed, can have a powerful effect on reducing the stool volume and duration of diarrhea. In many countries simple mixtures of starch staples (rice, maize) mixed with legumes (lentils, beans) are acceptable to children with diarrhea and have beneficial effects on the course of diarrhea. Qualitative data on attitudes and beliefs about foods and feeding during diarrhea (foods that might be acceptable to caretakers) are useful for designing nutrition counseling messages and interventions.

Recognition of danger signs of severe illness is an important home care message for IMCI. Some of these signs are non-specific and common to all children with severe illness (vomiting everything, lethargy or change in consciousness, not breastfeeding, not eating or drinking), and other signs are specific for dysentery (visible blood in the stool), or persistent diarrhea (diarrhea continues for 2 weeks or more).

Other child health behaviors that are part of the integrated set of key behaviors for the prevention and management of illness in children are also important for diarrhea including breastfeeding and complementary feeding behaviors; intake of vitamin A; and immunization seeking, see IMCI and BCI sections.

Developing community-level interventions

Ethnographic/qualitative data can be particularly important for planning diarrhea interventions and developing messages to change household behavior. Important information includes:

- Local terms and language for describing diarrhea and signs associated with dehydration or severe illness. Messages should use language that is understood locally.
- Local perceptions and beliefs about the causes of diarrhea or about the appropriate treatment for diarrhea. Strong local beliefs may need to be overcome in order to ensure that home management is effective.
- Acceptable fluids and foods for treating diarrhea at home; fluids may vary depending on the type of diarrhea; sometimes fluids that are too diluted may be used.
- Care-seeking behavior for infants and children with diarrhea. Often caretakers do not take their children to the formal health sector; drug sellers, pharmacists, traditional healers, community volunteers etc. may be used. Improving the skills of community-based providers is an important

strategy for improving the management of diarrhea locally; local providers or volunteers can conduct basic screening, provide ORS, facilitate referral where required and give basic health education in key health behaviors

For more information on approaches to developing household and community level interventions, see BCI section.

4.h Malaria

It is estimated that there are 300 million cases of malaria worldwide every year, and about one million of these cases will be fatal. Most of these malaria deaths are in children under five years, and most are in Africa, where one out of every four childhood deaths is caused by malaria. Children still die because they lack access to proper care and life saving drugs, or don't have access to preventive measures such as sleeping under insecticide treated bednets.



Essential Elements

- Prevention
- Standard Case Management

Plasmodium falciparum, the parasite responsible for most malaria-associated deaths, affects children in three ways: acute malarial illness; chronic or persistent malarial parasitemia with anemia; and malaria infection in the mother, which can affect the newborn. Malaria interventions are appropriate and important in endemic areas where the disease makes a substantial contribution to under-five mortality. Children are directly affected by malaria in most of sub-Saharan Africa. In some areas of South and Southeast Asia, the disease affects mostly the adult population, but inflicts an economic burden on the entire family. However, the goal of a malaria intervention in a child survival project is to reduce malaria-associated mortality and morbidity, especially in children and pregnant women.

PVOs have an especially important role to play in malaria prevention and treatment. While national malaria programs reorient themselves in this era of health sector reform and decentralization, PVOs can focus on malaria in the health center, the home, the community and the marketplace. The WHO "Roll Back Malaria" (RBM) strategy of "home as the first hospital" places an increased emphasis on caretaker's recognition of malaria and treatment seeking in both the formal and non-formal health care systems. This is a radical shift requiring new tools and skills for national malaria control programs. PVOs, who have already been working in such areas as community-based nutrition, family planning and micro-credit schemes can play a vital role not just in implementation, but also by using their experience to help steer national policies and strategies.

Organizations implementing a malaria program may include any or all of the following activities. 1) Improved malaria disease recognition and standard case management (including reduction of anemia). 2) Reduction in malaria transmission through community-wide (especially children and pregnant women) use of insecticide-treated mosquito nets, including regular re-treatment of nets. 3) Antenatal prevention and treatment of malaria. 4) Other simple and effective environmental approaches to malaria control.

Activities that are beyond the scope of child survival programs include large-scale insecticide-spraying operations or environmental engineering measures, and community-wide administration of anti-malarial drugs, including mass-chemoprophylaxis for children. BHR/PVC funds may not be used to procure insecticides.

Prevention

Insecticide-Treated Materials (ITMs)

Trials of ITMs (especially bed nets (ITN), and to a lesser extent curtains) have demonstrated that this simple technology can reduce all-cause mortality for children under five by about 25%. Recent data on ITMs for pregnant women indicate that ITMs can also have a significant impact on maternal anemia, pre-term delivery and low birth weight. These were mainly controlled trials where nets and insecticide were distributed free of charge.

How effective ITMs are under conditions of voluntary acquisition and use is less clear (than within a controlled research setting). To be successful, ITM programs must create conditions for sustained public demand for, access to, and appropriate use of affordable nets and the insecticides to treat and retreat them. Sustained insecticide retreatment programs are more difficult to implement than are net supply programs, however the success of reducing malaria morbidity and mortality is contingent upon correct net retreatment over time, as well as the proper and consistent use of nets by the most vulnerable members of the household.

As there are several kinds of insecticides there are also several types of nets/shapes on the market, which can be made of several types of material. Different shapes and materials will need more or less insecticides, and PVOs need to be aware of this when deciding on re-dipping strategies, since environmental regulations (country rules as well as USAID rules) limit the amount of insecticide that can be used.

Community and Household:

Public demand: At present, public demand for bed nets and other insecticide-treated materials varies widely. Mosquitoes are often not recognized as the cause of malaria. Bed nets may have high acceptability in many communities as a defense against nuisance bites, but not as a means for malaria prevention. While programs can take critical advantage of the "nuisance factor" and build an intervention on it, it is also important to reeducate the community on malaria transmission. Insecticide treatment and re-treatment of bed nets and curtains is the critical point for health impact, but is not yet widely disseminated. Demand creation is a very large area to concentrate on. Care must be taken so the communication strategy is based on real factors that motivate a family to acquire and appropriately use an ITM, and assure a clear message that only mosquitoes (and MTCT) transmit malaria.

ITM promotion activities must be based on comprehensive formative research to fully understand the behavioral, market and social environment in which one works. There are essentially two interventions associated with ITNs - building a net culture, and promoting retreatment behaviors. This must be kept in mind when conducting baseline investigations during the design of programs. Some of the issues to explore are net and retreatment use (current use in the community, latent demand, and barriers to net acquisition and use); household sleeping patterns (who sleeps with whom, where do targeted at-risk children sleep until what age and with whom); net preferences (type, size, color, durability, etc); net purchasing and use-in-the-home decision makers; pricing; preferred sources of purchase; and all the KAP factors related to malaria and net/insecticide use.

Using the results from formative research, clear and consistent key messages that are convincing and persuasive to the target community based on their own belief systems need to be developed.

Participatory message development (asking the community how they themselves would communicate the key messages) or the use of a creative ad agency have been employed successfully.

Appropriate use: To be effective, ITM programs are designed in accordance with local beliefs and social patterns to encourage ITM use by young children and pregnant women. ITM programs cannot be successful unless a number of ingrained behavioral and social patterns change. Without such changes, it is unlikely that the right populations will use the nets and have them treated correctly. For example, young children may not have priority for use of bed nets within households.

Target populations need to know what the appropriate use of their net is, such as the number of times the net must be dipped per year/per season, and the importance of re-treatment after extensive washing. People will make better use of nets if they know what the peak biting times of the day are (this can change by geographic region, ie - Latin America versus sub-Saharan Africa, etc).

In addition to bulk and liter bottle formulation, a number of insecticides are available in single dose - "dip it yourself" - formulations for home use, and this may make re-treatment easier.

To promote the appropriate community-wide use of insecticide-treated mosquito materials, programs need to target users. This includes mothers and children, and the community (families, community leaders, health workers, shopkeepers, traditional healers and all other influential persons) using a range of communication channels that might include media (radio, television, print), community health workers, social groups, and local theater, see BCI section.

Facility and Health System:

Access: In some areas bednets are made available at health facilities, health posts or community pharmacies. Antenatal clinics have been used as sites for distributing and promoting ITMs in some settings. In most developing countries, however, bednets are still not widely available. If available at all, they tend to be available only in urban areas. Organized public or private systems for the provision of public health insecticides are often non-existent.

To increase and improve access, a focus on supply and distribution systems is needed. This may include improving local production and packaging, and promoting distribution through pharmacies and local shops, as well as public sector sites. Different forms of supply and distribution may be available apart from public sector distribution. Social marketing uses the private sector to supply a subsidized product affordable to families with a low income. The "manufacturers model" works with the private sector to reduce production and distribution costs, so to provide cheaper, unsubsidized nets.

It is also important to improve economic access; correct pricing (full price – subsidized –donated) is a key factor in improving access and creating demand. A number of options are available including creative financing for net production and distribution, including cross-subsidization of costs, and providing incentives for distributors and retailers.

Lastly, increased usage and re-treatment from a variety of community sources can be promoted through behavior change communication interventions, see BCI section.

Affordability: In many places bed nets cost more than US\$10 each and insecticide treatments US\$1 – 2 per year. The typical household may require up to three bed nets (which should last 2-4 years), but the initial cash outlay may be beyond the reach of most households. Programs that address issues of

equity through public-sector distribution of subsidized nets have been difficult to sustain on a large scale, especially where the subsidized product is bought by those who could have afforded the regular commercial prices. Alternative approaches to achieve equity while not undermining the long-term commercial viability include the use of vouchers and coupons enabling a reduced price through the commercial distribution networks.

Sustainability: To be sustainable, systems that provide nets and then treatment and re-treatment with insecticides in a way that covers all program costs are required. Each of these elements needs to be examined carefully by reviewing the procurement and distribution systems, costing of products, cost-recovery mechanisms, and potential demand. Retreatment activities are usually organized on a community-basis. Communities need to take responsibility for this in the longer term. Newer single dose insecticide formulations open up other 'marketing' options, and may mean that re-treatment can be conducted at the level of the household. Public or private systems for delivery of public health insecticides also need to be examined. Insecticide-treated mosquito net activities should only begin when it is likely that a sustainable program of net provision and re-treatment can be set up.

Simple and Effective Environmental Approaches

Application of environmental approaches must be based upon simple identification of the malaria vector and its breeding sites. While there are three main environmental approaches to malaria control (larval management, chemical control of malaria vectors, and modification of human habitations), none can be funded by the CSGP. However, PVO match funds or other sources may be used, and PVOs are encouraged to implement parallel projects or activities in the same program site.

As with treatment and prevention, community/household participation is important. Communities can identify their own rationale for vector control e.g. the reduction of nuisance mosquitoes is an acceptable motivation for applying these methods. Any of the environmental approaches and consequential efforts should have significant public involvement and support.

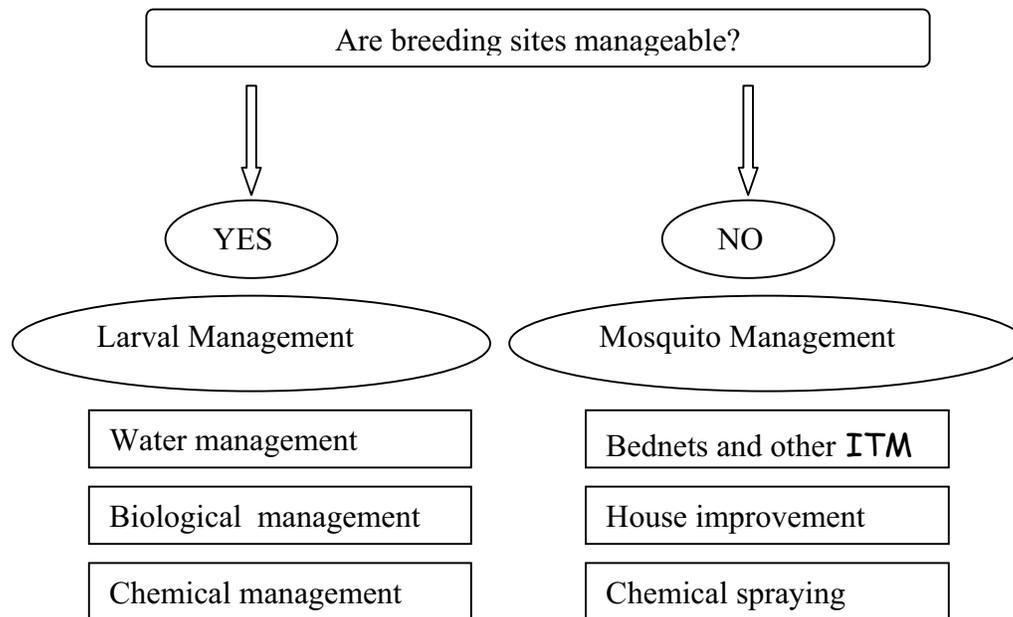
Larval management approaches require substantial information about vector ecology, distribution of larval habitats, and local environmental conditions. Also, they tend to be effective only under certain conditions, and successful control in one location may not be predictive of results elsewhere. Environmental modification involves a physical change to potential mosquito breeding sites by e.g. drainage, land leveling, and filling. Environmental manipulation aims at reducing larval breeding sites through temporary changes. Some examples include water management activities such as changing water levels in reservoirs, flushing streams or canals, and providing intermittent irrigation to agricultural fields (particularly rice). If the breeding sites cannot be eliminated, there are also several biological and chemical options available including larvivorous fish, microbial control or chemical larvicides.

Chemical control of malaria vectors (adult mosquitoes) includes indoor residual house spraying, which has a long history of efficacy. There are a number of chemicals available, and all of these products come with significant environmental concerns; they must meet WHO product specifications and necessary safety precautions must be applied for their use and disposal.

Modification of human habitations, such as changes in location or construction of housing are complex, but humans have long practiced this simple form of malaria prevention by locating houses

away from breeding sites. Changes in human behavior may reduce human/vector contact: mosquito-proofing dwellings by covering windows, eaves, and doors with netting is practiced by the “better-offs”. See also section on nets.

The following decision tree can help in deciding which approach to take:



Note on M&E: if you plan to undertake this type of activity, success can be measured in three relatively simple ways: percent reduction of positive anopheline breeding sites, person-bites (per hour), and entomological inoculation rates.

Prevention and Treatment in Pregnant Women

Women who are pregnant for the first time are at greatest risk for complications arising from malaria. They also might not attend antenatal services as frequently as other pregnant women, especially if they are unmarried or very young.

Antenatal prevention (commonly referred to as Intermittent Preventive Treatment—IPT) and case management of malaria may increase birth weight and reduce maternal and fetal morbidity and mortality. The prevalence and intensity of malaria infection during pregnancy is higher in women who are HIV infected of any parity. In addition, HIV-positive women do not respond as well to malaria prophylaxis.

Weekly chemoprophylaxis with chloroquine has been used widely, although compliance with the drug is sometimes a problem. In addition, weekly chloroquine prophylaxis is no longer effective in many countries because of the increasing prevalence of chloroquine-resistant strains of *P. falciparum*. Where there is widespread drug resistance, an alternative treatment protocol needs to be selected in consultation with the ministry of health. Considering the well-documented limitations of chemoprophylaxis for the prevention of malaria burden during pregnancy, chemoprophylaxis is no longer recommended for use to protect pregnant women, especially in areas of stable malaria

transmission. Treatment protocols need to be based on the pattern of drug resistance for both children and adults. In areas with chloroquine (CQ) resistant *P. falciparum*, WHO currently recommends that intermittent preventive treatment with sulfadoxine pyrimethamine (SP/Fansidar) be provided to all pregnant women with a minimum of two treatment doses (3 tablets) at monthly clinic visits beginning after quickening¹. For areas with CQ-sensitive *P. falciparum* and/or other malaria species, WHO recommends at least two treatment doses of CQ at monthly visits beginning after quickening. In Malawi, for example, the Ministry of Health now recommends the administration of a full course of treatment with SP twice at predefined intervals during pregnancy (e.g. at the beginning of the second and third trimesters).

¹(The first perception of the baby's kicking and movement is referred to as quickening. Quickening usually appears between 14-26 weeks of pregnancy)

Community and household: In all malaria endemic areas (high and low transmission) women need to be educated on the increased risk of malaria during pregnancy.

In areas of high malaria transmission:

- Promote the use of insecticide-treated mosquito nets by all pregnant women.
- Encourage all pregnant women to seek antenatal care during pregnancy and take intermittent preventive treatment beginning after quickening.

ITNs should be provided to pregnant women as early in pregnancy as possible, and their use should be encouraged for women throughout pregnancy and during the post-partum period.

Health facility: In all malaria endemic areas (high and low transmission), it is important to ensure the availability of a “comprehensive package” of antenatal care. This package needs to include access to early diagnosis and quality case management of Malaria; access to micronutrient supplementation to prevent anemia (iron/folate tablets for all pregnant women); access to early diagnosis and effective treatment for anemia; and education for women about the increased risk of malaria during pregnancy.

In areas of high malaria transmission, in addition to the “comprehensive package” of antenatal care, it is important to provide IPT with an effective anti-malarial at predefined intervals during pregnancy (at least once during the second AND third trimesters), and to promote the use of insecticide-treated mosquito nets by all pregnant women.

Special attention needs to be paid to high-risk groups, such as first and second pregnancies, and HIV-positive women (HIV-infected pregnant women may require more frequent intermittent treatments).

Health System: *In all malaria endemic areas (high and low transmission)* assure availability of effective and appropriate anti-malarial drugs and iron/folate.

Malaria Standard Case Management

Community and Household (C/HH): To assure early treatment, it is important that caretakers recognize early symptoms and danger signs (*i.e., child looks unwell, is not eating or drinking, lethargy or change in consciousness, vomiting everything, high fever, fast or difficult breathing*), *and then seek care from an appropriate provider.*

Other IMCI emphasis behaviors that are important for the management of malaria in the home include taking a full course of anti-malarials (dosage and duration); continued feeding and increased fluids during illness; and continued fluids and feeding immediately after illness. All infants and children, sick or not, need to consume enough micronutrients, especially iron and vitamin A. A number of community-level channels can be used to transmit information on key behaviors at both the household and community levels. Community Health Workers (CHW) are particularly useful as links between the community and the facility. CHWs can play an important role in assuring compliance with anti-malarial drugs, and counseling of families on recognition of illness and care-seeking and home care. The development of behavior change messages and materials needs to be based on qualitative and ethnographic data on local perceptions and beliefs about malaria, home treatment of the disease, and words and terms used to describe it, see BCI section.

When access to care is limited, consideration should be given to improving case management in the community. A number of community-based providers have been trained to conduct simple malaria case management and to give anti-malarial drugs effectively, including CHWs, CBDs, shopkeepers, pharmacists, drug vendors, and traditional healers. First level case management guidelines for the management of malaria should, at a minimum, include an approach to managing possible pneumonia; SCM guidelines based on the IMCI approach are ideal since these guidelines combine the screening and management of malaria and pneumonia with other important causes of childhood morbidity and mortality, see IMCI section.

There is increasing research on the treatment of fever directly in the home by the caretakers of young children. In areas with high malaria transmission, and limited access to health providers, this approach may be the only strategy for ensuring early presumptive treatment of malaria. Studies have demonstrated that caretakers can be trained to recognize fever and to give anti-malarials, and that the incidence of severe malaria can be reduced in these communities. More data from on-going field trials of this method are expected.

Health Facility: The malaria section of the IMCI algorithm for use at the primary care level includes assessment, classification, treatment, referral of severely ill children, recognition of treatment failure, use of second-line anti-malarials, and counseling. Counseling is focused on compliance with anti-malarials, recognition of danger signs at home, and other home care strategies such as continued feeding and fluids. Also included are recognition and management of anemia, including iron supplementation, de-worming, and counseling of caretakers on nutrition and prevention of anemia. Training for improved management of severe and complicated malaria should be facilitated where referral is not possible.

IMCI guidelines for referral level staff, where cases of severe malaria or anemia are managed, are available. If referral is not available, then consideration can be given to training first level health workers to manage more complicated cases at the primary level.

The overlapping clinical presentation of malaria and pneumonia is an important consideration in all areas where children are treated for malaria. A substantial proportion of children with fever will also meet a pneumonia case definition (cough or difficulty breathing, and fast breathing or chest in-drawing), and almost all children meeting a pneumonia case definition also have fever or a history of fever. Treatment of malaria alone may result in death from pneumonia, thus all malaria protocols for first level health workers in communities or at health facilities should include case management for

pneumonia. The IMCI approach screens sick children for both diseases and gives presumptive treatment for both conditions when non-specific symptoms and signs are present.

Health System: The main components of health system strengthening for malaria are similar to those for other child health intervention areas, and include developing data-based drug policies; drug resistance monitoring and mitigation; clinical supervision for trained staff at all levels; logistics management for the distribution of nets and insecticides; logistics management for essential first and second line drugs, supplies and equipment at first-level and referral sites; monitoring and evaluation of the quality of care provided as well as other program outcome and impact measures; provision of effective referral systems; and improved district level planning and management of program activities. Ongoing monitoring and regular evaluation can help identify areas where malaria is a problem so that activities can be targeted to high-risk sub-populations.

Chloroquine-resistant strains of *Plasmodium falciparum*- are becoming increasingly prevalent throughout Africa, and this will have a significant impact on mortality in areas where chloroquine remains the drug of choice. Drug resistance needs to be monitored, so that the efficacy of treatment can be followed, and to ensure that alternative drug policies and guidelines can be put into place in a timely fashion. PVOs and other organizations can collaborate with the MOH to assist with drug resistance monitoring, and can help with logistics support and supervision. The most suitable method for monitoring is measuring the therapeutic efficacy of anti-malarial drugs. Other more complex levels of monitoring may include in-vitro testing. Details and protocols on monitoring therapeutic efficacy can be obtained locally from the MOH or from CDC and WHO.

4.i STI/HIV/AIDS

“A decade ago, HIV/AIDS was regarded primarily as a serious health crisis. Estimates in 1991 predicted that in sub-Saharan Africa, by the end of the decade, 9 million people would be infected and 5 million would die – a threefold underestimation. Today, it is clear that AIDS is a development crisis, and in some parts of the world AIDS is rapidly becoming a security crisis as well. This trend in HIV/AIDS will have a profound impact on future



Essential Elements

- Prevention
- Mitigation
- Care

rates of infant, child and maternal mortality, life expectancy and economic growth. These unprecedented impacts at the macro-level are matched by the intense burden of suffering among individuals and households. AIDS is unique in its devastating impact on the social, economic and demographic underpinnings of development.

To be effective and credible, national responses require the persistent engagement of the highest levels of government. Other elements that have proved to be vital are a single, powerful national AIDS plan involving a wide range of actors; social openness, increasing the visibility of the epidemic and countering stigma; social policies that address core vulnerabilities; the engagement of all sectors (not just health); a recognition of the synergy between prevention and care; support to community participation; and targeting interventions to those who are most vulnerable, including young people before they become sexually active. Countries that have adopted forward-looking strategies to fight the epidemic are reaping the rewards in the form of falling incidence. The task of rolling back the burdens that the AIDS epidemic has already brought is enormous. Caring for those who are infected remains an enormous national and international challenge. Caring for the orphans that the epidemic has left behind compounds this task. Protection of another generation of young people from premature illness and death is a responsibility of the highest order, and is in many countries the greatest contemporary leadership challenge.” (Peter Piot)

The goal of the STI/HIV/AIDS prevention programs are to prevent the transmission of HIV infection in the high-risk and vulnerable populations, to improve child survival outcomes, to provide care for persons living with HIV/AIDS and to mitigate the impact of the epidemic on individuals, families and communities. HIV risk for individuals and communities differs widely around the world depending on the prevalence of risk behaviors, prevalence of biologic co-factors and the environmental context. When designing interventions, organizations need to have a solid awareness of what the prevailing risk environment is in the communities, and a realistic understanding of the potential for HIV to spread quickly or slowly. Based on this awareness, the intensity and composition of interventions can vary dramatically. Other things being equal, communities with low HIV prevalence and low potential for epidemic spread in the general population should receive highly targeted intervention programs among those individuals with the highest level of risk behavior. In communities with high or rapidly increasing HIV prevalence, the emphasis expands to include a broader community-wide strategy with links between prevention and care activities, still targeting and intensifying activities aimed at high-risk and vulnerable groups to prevent further spread into the general community.

In either case, programs should avoid implementing components of STI/HIV interventions in isolation. Instead, a more comprehensive approach is recommended, which includes the mutually reinforcing areas of behavior change (and behavioral development) interventions; adequate supplies of

communities such as condoms, STI antibiotics, gloves, laboratory reagents, needles and syringes; STI case management voluntary counseling and testing (VCT) for HIV and care and support services as needed. On-going behavioral and biologic surveillance and other program evaluation and monitoring will provide information regarding impact and for redesign of interventions.

Comprehensive Prevention and Care Activities

Changing individual and community behaviors is the key to HIV prevention. A number of factors influence individual sexual behavior including knowledge and awareness, and community and societal norms and influences. To impact on the epidemic it is essential to:

- ◆ Reduce high-risk sexual behavior – including decreasing the number of partners, postponing sexual activity, consistent correct use of condoms;
- ◆ Increase treatment seeking for sexually transmitted infections (STI) and tuberculosis (TB);
- ◆ Ensure the establishment of a continuum of care from the home to clinical services, including home care and social support services for those affected;
- ◆ Expand support for norms and policies that encourage HIV and STI prevention;
- ◆ Strengthen health service capacity to reduce mother-to-child transmission (MTCT) including counseling about sexual activity while pregnant, appropriate management of labor, delivery and the immediate postpartum period and guidelines on infant feeding (especially breastfeeding);
- ◆ Decrease stigma and discrimination against people affected by HIV/AIDS;

And

- ◆ In areas where injection drug use and/or MSM (males who have sex with males) contributes to the epidemic, interventions to reduce HIV transmission in these settings both parenteral and sexual.

A combination of inter-linking interventions to impact on behaviors at the individual, societal, structural and environmental levels is recommended as follows:

- Behavior Change Interventions. At the individual level, programs need to include peer education, HIV voluntary counseling and testing, and small-group interventions to increase knowledge, influence attitudes and perceptions of risk and develop safer-sex and negotiation skills. Mass media efforts can influence societal norms, reinforce interpersonal and group communication, and spearhead discussions on risk and risk behaviors related to HIV /STI, (see BCI section);
- Community and institutional mobilization. Interventions aimed at individuals are reinforced by initiatives at the societal level, such as school and workplace programs that mobilize communities to create a supportive environment for reducing risk and vulnerability, and initiatives with women's networks and networks of people living with HIV/AIDS. In-school and out-of-school youth are a crucial target group in all settings, and tailored approaches are required to address their needs.
- Health Services. Facility upgrading; training on state of the art case management of STIs, TB and HIV/AIDS including MTCT; support of essential systems such as supervision and essential drugs; strengthening antenatal care and obstetric services for HIV+ pregnant women; setting up sound referral systems within the health system and to the community home care initiatives; and influencing health care provider attitudes so appropriate continuum of care is available in the community.
- Commodity distribution. Strengthened commodity distribution systems and efforts such as condom social marketing, community based condom distribution programs and STI pre-packaged

therapy initiatives can help to ensure that the commodities needed for prevention are accessible to the community.

- **Other Services.** In advanced epidemic settings, links with other important services to the community such as home based care initiatives, legal support systems, spiritual support systems and social economic initiatives such as income generation to mitigate the impact of the epidemic.

Comprehensive intervention programming takes place at the individual, family and community level. The reach and impact of BCI programs can be maximized through collaboration between government agencies, NGOs, PVOs, international donors and the commercial sector.

Voluntary Counseling and Testing (VCT)

HIV voluntary counseling and testing (VCT) goes beyond drawing and testing blood and offering a few counseling sessions. Programs need to consider HIV VCT as a vital point of entry to prevention and several other HIV/AIDS services such as prevention of mother-to-child transmission (MTCT) and clinical management of HIV related illnesses, TB control, and psychosocial support.

To respond as fully as possible to the needs of those seeking HIV VCT, VCT promotion should be coordinated with the design and establishment of high-quality HIV VCT services. This includes identification or strengthening of other care and support services and community and hospital referral networks. Since counseling is a culturally sensitive intervention, international organizations should work in each setting with local counterparts to develop suitable services based on a client-centered approach, and to address the reduction of stigma.

Although cost-effective, HIV VCT remains an expensive HIV intervention for most non-industrialized countries, the cost of VCT services per person depends on whether the service is stand alone or integration into existing health services. The design and set-up of HIV VCT services should be tailored to the unique epidemiological, behavioral, and economic context of each country and setting.

Prevention of Mother-to-Child Transmission (MTCT)

Each year, more than 600,000 infants become infected by HIV/AIDS, mainly in developing countries. Since the beginning of the HIV epidemic, an estimated 5.1 million children worldwide have been infected with HIV. Mother-to-child transmission (MTCT) is responsible for more than 90% of these infections. Two-thirds are believed to occur during pregnancy and delivery, and about one-third through breastfeeding. As the number of women of childbearing age infected by HIV rises, so does the number of infected children. (Note: MTCT during breastfeeding is extensively discussed in the breastfeeding section.)

According to a technical consultation held in Geneva from 11-13 October 2000, “the prevention of mother-to-child transmission of HIV should be included in the minimum standard package of care for HIV-positive women and their children.” A number of available drug regimens are known to be effective and safe, and the choice of regimen should be determined according to local circumstances concerning cost and practicality, particularly as related to the availability and quality of antenatal care. The simplest regimen requires a single dose of Nevirapine at the onset of labor and a single dose for the newborn. Nevirapine is relatively cheap, simple to use, and effective.

The prevention of MTCT involves more than simple provision of anti-retroviral drugs. It also requires appropriate VCT services for women at risk, as well as support for mothers and infants, including counseling on infant feeding options. In addition, clinical practices during the intrapartum and post partum periods, such as reduction in routine episiotomy, avoidance of premature rupture of membranes, and immediate cleansing of the newborn's face, can also be implemented to decrease the risk of MTCT.

Care and Mitigation

Care and Support: HIV/AIDS “care and support” is defined as an intervention or set of interventions whose purpose is to mitigate the impact of the HIV/AIDS epidemic on individuals, families, communities, and nations. Care and support activities therefore are broad in nature and are critical to the continued efforts of communities, governments, and donors to promote sustainable development in the face of the HIV/AIDS epidemic.

Country experience shows that a combination of interventions is very effective in reducing the impact of HIV on HIV-positive persons. These include protecting their human rights and reducing stigma and discrimination; providing psychosocial and socioeconomic support to them and their caregivers; providing palliative care to control pain and the symptoms of opportunistic infections; and preventing and treating opportunistic infections to reduce suffering and prevent and delay death. TB is one of the major opportunistic infections in HIV infected persons and is treatable. TB is the leading cause of mortality among AIDS patients. TB is an important disease to target in areas with high HIV infection rates because it is one of the rare infectious diseases that is fueled by the HIV epidemic but does not remain confined to HIV-infected individuals.

HIV/AIDS affects an entire community—families, extended families, villages, and cities. The toll of HIV/AIDS includes orphans, disruption of village and community life, and ultimately, disruption of civil and political order. To reduce these effects, providing psychosocial support to families, friends, caregivers, and communities is essential. To do so, strengthening existing community resources such as CBOs, NGOs, schools, churches and community institutions is required. Communities need to be empowered to identify and implement solutions, and to create new community-based resources to respond to the changes brought about by the epidemic such as reduced farm output, loss of teachers, and children caring for adults. It is clear that these goals are beyond the reach of any one PVO. PVOs should, however, have the flexibility to act as networking facilitators, relieving bottlenecks and identifying weaknesses in the implementation of a unified multidisciplinary national HIV prevention, care and mitigation plan.

Priorities for HIV/AIDS Care and Support: In developing countries, care and treatment for HIV-infected persons and support for their families is minimal. Less than 10 percent of persons know their HIV status, and health care providers cannot readily diagnose and treat HIV and the associated opportunistic infections, let alone use the state-of-the-art antiviral treatment regimens. Ideally, there should be a continuum between inpatient and community outpatient treatment, combined with psychosocial and socioeconomic support services, utilizing a wide range of community workers including traditional healers. Even in the absence of anti-retroviral drugs, there is much that can be done to improve the quality and duration of life for HIV-infected persons and their families within the developing country setting. **In light of the limited availability of resources, USAID places highest**

priority on basic and essential HIV/AIDS care and support interventions. These include efforts to:

- **Involve People Living with HIV/AIDS (PLHA) in policymaking, strategic planning, and in the implementation of prevention and care programs.** By including PLHA in the decision-making process and the delivery of services, policies and services will better meet the needs of communities and the intended recipients, and serve to reduce the stigma associated with HIV infection.
- **Expand HIV VCT.** Less than 10 percent of all PLHA have ever been tested. Identifying persons for care interventions in a protective environment is an essential first step in a care program.
- **Establish a linked network with the hospital, clinic, faith-based, and community-based services.** Out of necessity, these networks should cross the boundaries between public, private, and voluntary sectors as well as the boundary between western and traditional medicine. (Depending on the culture and the setting, traditional healers could play a major role in de-stigmatization of PLWA. One however must remember that traditional healers are private practitioners, and that each has an individual approach to their craft. Evidence based practice has not been their priority, and people with an incurable disease (HIV) can spend a large proportion of family income without lasting benefit.)
- **Support clinic and hospital-based care.** Health systems in developing countries, especially those in high-prevalence countries, need additional training and resources to provide basic health care (including ANC and obstetric care) and palliative care to PLHA.
- **Support home-based care.** Home-based care by NGOs and church groups is an effective way to provide HIV/AIDS psychosocial support, education, and training to PLHA and their family members.
- **Prevent and treat tuberculosis (TB) and other opportunistic infections.** TB is one of the earliest opportunistic infection and the leading cause of death for PLHA. Because TB deaths often occur early in the course of HIV disease, INH prophylaxis to prevent TB potentially results in substantial prolongation of life. This prophylaxis should not be attempted in the absence of a functioning TB control program, as single drug therapy with INH in the presence of TB disease is contraindicated, and poor adherence will lead to drug resistance without benefit. Cotrimoxazole prophylaxis is indicated for individuals in WHO stages III and IV of HIV disease, and can bring real quality of life benefits.
- **Reduce stigma and discrimination of PLHA.** Programs to reduce the stigma associated with HIV/AIDS are essential to the success of both care and prevention activities. HIV disproportionately burdens marginalized groups. Prejudice makes health care providers less sensitive to the needs of PLHA, while those who are stigmatized do fear disclosure, violence and loss of livelihood.
- **Strengthen families and communities to care for vulnerable children, including orphans.** In the developing world, children often take care of sick parents and become heads of households to younger siblings after their parents die. Access to education is limited and orphaned children often migrate to urban centers where they are at high risk for sexual abuse and HIV–infection. Programs that strengthen the extended family and community make it possible for children to receive the assistance they need to stay in school and be appropriately socialized.
- **Strengthen community-based systems to provide socioeconomic and psychosocial support to individuals and households coping with infection.** Communities have systems to provide

social and economic support to families in times of need. Linking families affected by HIV/AIDS to these sources of support is essential for a sustained response to the epidemic.

- **Link HIV prevention programs to care and support programs.** Care and support activities improve the ability of prevention programs to reach infected and vulnerable populations; give credibility to prevention programs and to the leaders who advocate for them; and, by strengthening communities, create a sense of ownership for the solution as well as the problem.

AIDS Orphans

Children on the Brink 2000 estimates that more than 44 million children in 34 developing nations will likely to have lost one or both parents by 2010. Most of these deaths will result from HIV/AIDS and complicating illnesses. The human and social dimensions of these losses are staggering. AIDS currently accounts for only about half of all orphans in many of the countries included. However, the estimated numbers of orphans do not include HIV-positive infants and young children. In the 34 countries in this study, the U.S. Census Bureau estimates that half of all HIV-positive children will die before their first birthday. Most of the rest will die before their fifth birthday. This explains the small number — 1.3 million — of HIV-positive children worldwide. Since the large majority of orphans due to AIDS are HIV-negative, the worldwide total of children orphaned by AIDS will continue to grow through at least 2020. Proposed strategies to mitigate the problem are:

1. Strengthen the capacity of families to cope with their problems.
2. Mobilize and strengthen community-based responses.
3. Increase the capacity of children and young people to meet their own needs.
4. Ensure that governments protect the most vulnerable children and provide essential services.
5. Create an enabling environment for affected children and families.

At the community: Within a child survival program, it is possible to implement activities designed to improve child survival outcomes in households and communities affected by HIV/AIDS. Key issues affecting child survival in such households and communities include care for infants and children orphaned due to AIDS, and food security in households and communities facing loss of labor and income due to HIV/AIDS. Even when HIV/AIDS activities are not planned as a part of a child survival project, in areas affected by HIV/AIDS, programs should ensure that nutrition, immunization, and other child survival interventions are accessible to orphaned children and households isolated due to HIV/AIDS.

Communities can be supported in a number of ways, including the following illustrative activities: community needs assessments; monitoring of vulnerable children and families; home care of orphans and HIV patients; family counseling and health education; support groups for families and infected individuals; improvement of nutrition and food security; and advocacy to promote the rights of individuals with HIV/AIDS. Such activities are most successful when communities participate fully in decision-making and take responsibility for project successes and failures.

4.j Tuberculosis

Approximately one-third of the world's population is infected with *Mycobacterium tuberculosis*. Each year an estimated 8.4 million new cases are produced from this reservoir of infection, and 1.9 million people die of the disease. The developing world is the worst affected with 95% of all tuberculosis (TB) cases and 98% of all TB deaths. Tuberculosis kills more youth and adults than any other single infectious agent in the world today. Seventy-five percent of TB cases in developing countries are among those in their most economically productive years (15-45).

Elements of the DOTS Strategy

- Political Commitment
- Sputum Smear Microscopy
- Directly Observed Therapy
- Quality Drug Supply
- Reporting



The persistence of TB has been due chiefly to the neglect of TB control by governments, poorly managed TB control programs, poverty, population growth and migration. More recently, the growing HIV pandemic is contributing to the rising number of TB cases. HIV is a significant factor in increasing the risk of progression from TB infection to disease. Those affected with HIV have a 50% chance of developing active TB during their lifetime. In Africa, approximately 30% of all TB cases are now due to HIV. In some of the worst affected countries in Sub-Saharan Africa, more than 60% of TB patients are HIV-positive.

Currently 80% of the world's TB cases are found in the following 22 countries:

India	South Africa	Thailand
China	Ethiopia	Burma
Indonesia	Vietnam	Afghanistan
Bangladesh	Russian Federation	Congo
Pakistan	Brazil	Uganda
Nigeria	Tanzania	Peru
Philippines	Kenya	Zimbabwe
		Cambodia

The Disease

Tuberculosis is a contagious bacterial disease caused by *Mycobacterium tuberculosis*, which is spread through the air. The main source of infection is a person with TB of the lungs (pulmonary TB) who coughs, sneezes or spits, and spreads infectious droplets containing the bacteria in the air. Once infected with *Mycobacterium tuberculosis*, a person stays infected for many years, and often for life. However only 10% of those infected develop active disease. Various physical or emotional stresses trigger progression from infection to disease. Any weakening of the immune system—for example, malnutrition or HIV infection—increases the chances for disease to develop. Left untreated, a person with active TB will infect on average 10 to 15 persons a year. The most effective approach to TB control is the identification and cure of these infectious cases. Proper treatment of infectious cases quickly renders the individual non-infectious so they can no longer spread TB. Breaking the cycle of transmission has become increasingly more important because of the emergence of drug-resistant TB.

Tuberculosis bacilli can become resistant to anti- TB drugs when the wrong drugs or combination of drugs are prescribed, the drug supply is unreliable, or patients do not adhere to regimen. Once the bacilli become resistant to one or more anti-TB drugs, the infected person can infect others with the same drug-resistant strain, which is difficult and costly to treat, and more likely to be fatal.

The DOTS Strategy

The goals of TB control are to reduce mortality, morbidity and transmission of the disease, while minimizing the emergence of drug resistance, until TB no longer poses a threat to public health. To achieve this, it is necessary to ensure access to diagnosis, treatment and cure for each TB patient, and to protect vulnerable populations from TB and its drug-resistant forms.

Historically the treatment of TB was highly ineffective and could take several years, but in the 1950s the development of new drugs, given in combination, cured TB and revolutionized treatment by eliminating the need for lengthy hospitalizations. By the 1970s, the introduction of rifampicin as part of a combination of anti- TB drugs reduced treatment to six to eight months. The process of giving these new drugs under direct observation became known as the Directly Observed Therapy, Short Course (DOTS). Despite the availability of these effective drugs TB continues to be a persistent problem. The need for a more comprehensive approach to TB control within the context of a health care setting was required. As a result the concept of DOTS has evolved to a five-pronged comprehensive strategy that builds upon the administration of chemotherapy under direct observation. The World Health Organization recommends and USAID supports this approach.

The five elements of the DOTS Strategy are:

- ✓ Sustained political commitment
- ✓ Access to quality-assured TB sputum microscopy
- ✓ Standardized short-course chemotherapy to all cases of TB under proper case-management conditions including direct observation of treatment
- ✓ Uninterrupted supply of quality-assured drugs
- ✓ Recording and reporting system enabling outcome assessment

In order for a National TB Program (NTP) to function optimally all aspects of the DOTS Strategy need to be in place. PVOs proposing a TB activity may address any aspect of the DOTS Strategy in order to strengthen a NTP. However it is critical that all the activities are coordinated and integrated into the host government's program as well as coordinated with other partners working to strengthening the national program. In comparison to most of the interventions addressed in the Child Survival and Health Grants Program it is important to note that the targeted beneficiaries for a TB program are primarily adults. *NOTE:* PVOs should not propose activities that include BCG immunization, as this is part of the routine immunization system and is not an effective intervention in controlling TB in adults.

Political Commitment

The DOTS Strategy calls for sustained political commitment by national governments and mobilization of additional human and financial resources from within and outside endemic countries to help implement a comprehensive DOTS program. The DOTS program should be made an integral health system activity with nation-wide coverage that anchors TB activities throughout all levels of the health care system, including peripheral health facilities and the community. The effective expansion of DOTS demands a multi-sectoral and sustained response to address the social and environmental

factors that increase the risk of developing TB. This requires TB control to be viewed broadly, as a component of international, national and local strategies to alleviate poverty, with due consideration given to the right of every TB patient to access treatment.

Sputum Smear Microscopy

The recommended and most cost-effective method of case detection remains sputum smear microscopy among symptomatic persons seeking care. Diagnosis by radiographic examination (x-ray) in suspected TB patients is unreliable, as abnormalities identified on a chest radiograph are not specific for TB. The DOTS Strategy does not recommend using radiographic examination or the tuberculin test as the means for diagnosing TB.

Diagnosis with sputum smear microscopy requires health care services to be widely available and accessible to the whole population, including the poorest sections of the community. Adequate investments in the health care system are critical to provide access to a laboratory network with built-in quality control measures. Laboratories with competent, trained, motivated and supervised general health service lab technicians are essential. General laboratory services facilitate the diagnosis of pulmonary tuberculosis (including the correct classification of cases to determine the appropriate treatment regimen) and monitoring the treatment of sputum smear-positive cases.

Access to health care may not automatically improve case detection. Because of the stigma attached to TB, and now the increasing association of TB with HIV/AIDS, many people are reluctant to seek care. PVOs/NGOs can play an important role in educating and mobilizing the community, conducting active case surveillance for symptomatic persons, and facilitating patient access to diagnostic and treatment centers. Every effort must be made to detect infectious cases among those who present themselves to health care facilities including hospitals, medical institutions and non-governmental organizations as well as private practitioners. For this to be effective, health care providers should be well informed about TB and the use of sputum microscopy for TB case detection. Standardized practice guidelines for those providing care of respiratory diseases may improve case detection among patients with respiratory symptoms and increase the quality of TB diagnosis. As HIV infection is a key risk factor for developing active TB, it is important that TB control programs be linked closely with HIV/AIDS prevention and control programs.

Standardized Short-course Chemotherapy

The mainstay of TB control is administration of standardized chemotherapy to all confirmed cases of TB, with sputum smear-positive cases given priority for treatment. Providing anti-TB drugs to patients should be done under technically sound and socially supportive case-management conditions. In order to ensure the accountability of TB services, to help patients adhere to treatment, and to avoid the emergence of drug-resistant TB, direct observation of treatment is recommended whenever anti-TB drugs are being administered. The World Health Organization (WHO) recommended and published guidelines on patient categorization and TB management should be followed.

Involving communities can further strengthen TB care. To assure treatment compliance, TB patients need support and care that is sensitive to their needs. In practice this means providing an acceptable treatment partner or supporter that can motivate the patient to continue treatment and counter any tendencies to interrupt or abandon treatment. Tuberculosis control programs should explore the use of locally appropriate and acceptable ways of providing community-based or work place-based direct observation of treatment not only during the intensive phase, but also for the continuation phase.

In settings where private and voluntary providers play a role in providing TB case detection and treatment, public health services should collaborate in mutually acceptable ways. This collaboration is necessary to ensure that standardized TB treatment is available for every patient through all qualified health providers. The appropriate use of enablers and incentives may be one approach to improve provider compliance with treatment guidelines as well as patient adherence to treatment. Motivating both patients and providers is important in achieving effective TB control programs as various factors can inhibit access and utilization of TB services. Increasingly more programs are implementing both financial and non-financial incentives. Incentives may be appropriate and help to improve coverage and cure rates in DOTS programs that have already developed a solid foundation and where the impact of incentives can be monitored. It is not recommended that the use of incentives in TB control programs be considered if fundamental problems of standards, inputs, training and supervision have not been addressed.

Quality-assured sputum microscopy should be accessible to monitor the treatment progress, assess treatment outcomes and certify cure among patients with pulmonary tuberculosis. For any chosen method of supervision and administration of treatment, a program must show high sputum smear conversion and cure rates under routine conditions.

As high rates of drug resistant TB (MDR-TB) are a growing problem in some countries, it is critical to demonstrate and ensure high detection and cure rates of all new TB cases in a sustained manner throughout the existing health system. The emergence of MDR-TB is due to prescribing an unreliable regimen, using unreliable drugs, or failing to ensure (by directly observed treatment and education of the patient and his family) that the patient takes the drugs as prescribed and for the full period prescribed. DOTS programs that are able to achieve high detection and cure rates may possess the capacity to manage MDR-TB cases and may consider incorporating second-line drugs for the treatment of drug-resistant cases. It is essential, however, that this be undertaken in a systematic and standardized manner using the WHO guidelines on the diagnosis and treatment of MDR-TB.

Quality-assured drugs

The cornerstone of any TB program hoping to achieve effective control is an uninterrupted supply of quality-assured anti-TB drugs. A secure drug supply must be in place before a TB program is started or expanded. It is essential to establish a reliable system or to strengthen the existing system of periodic procurement and regular distribution of essential anti-TB drugs to all levels of the health care system. Given the potential for side-effects with the use of anti-TB medications, a system for reporting adverse-event needs to be incorporated along with information on treatment failures to provide feedback on the effectiveness of the drugs being used.

The TB recording and reporting system is designed to provide information needed to plan, procure, distribute and maintain adequate stocks of safe and effective drugs. Proper utilization of the drugs should be monitored closely. The use of fixed-dose combinations (FDCs), rather than single or loose drugs, could help improve drug supply logistics as well as drug administration, reduce non-adherence to treatment, and prevent development of drug resistance. Interest is increasing regarding the use of blister packs for drugs to further simplify logistics and improve treatment compliance.

Recording and Reporting System

A strength of the DOTS Strategy is the establishment and maintenance of a surveillance and monitoring system with regular two-way communication between the central and peripheral levels. This system is based on standardized recording of individual patient information, including information on treatment outcomes in registers maintained at an appropriate peripheral level, as well as analysis and reporting of this information in a prescribed format on a quarterly basis.

Each person diagnosed with TB (smear-positive, smear-negative, or extrapulmonary) should have a patient treatment card that records basic clinical information and the administration of drugs. The health worker uses the patient treatment card for recording treatment and for follow-up. During the continuation phase and at the end of treatment, patients are required to submit sputum samples for microscopy to ensure that they become and remain sputum-smear negative, and therefore cured of TB.

Such a system is useful not only to monitor progress and treatment outcomes of individual patients, but also to evaluate overall program performance. Definitions of case categories, classification of disease, and treatment outcomes have been established by WHO and should be followed. The recording and reporting system may be expanded to incorporate additional information, such as results of culture and drug susceptibility testing. However a key requirement would be to keep the system simple enough for analysis and use at the basic management level. Local analysis and use of routinely collected data should be encouraged, in order to identify constraints in achieving desirable results.

Cohort analysis is the key management tool used to evaluate the effectiveness of TB control activities in a given area. A cohort of TB patients consists of patients registered during a specified time period. The analysis refers to the systematic follow-up and reporting on indicators that evaluate treatment progress and success. Routine use of this monitoring and evaluation tool can reveal problems within the routine system and therefore improve the quality of service delivery and treatment outcomes.

Cross-cutting Elements of TB Control

Supervision and Training

Supervision and on-going training are necessary to ensure the quality of TB control services throughout the health care system. Each district should have a TB Coordinator or health care worker responsible for implementing TB control activities (case-finding and treatment). In order to maintain quality services, these coordinators should be trained and supervised by someone at the provincial/regional level. In turn, the central level of the Ministry of Health is responsible for training and supervising the provincial/regional coordinators. Primary health care workers should also receive basic training in TB control in order to recognize the symptoms of TB and refer suspected cases for accurate diagnosis and treatment.

Information, Education, Communication and Social Mobilization

Information, Education, Communication (IEC), advocacy and social mobilization constitute essential elements for furthering DOTS implementation and expansion. Appropriate communication of information to the community and patient education can improve health seeking behavior, treatment adherence and treatment outcomes. IEC campaigns should be used only where well functioning DOTS programs are in place to receive new patients and avoided in areas where a functioning program is not well established. In countries not achieving high cure rates, advocacy strategies encouraging governments to support the establishment and expansion of the DOTS Strategy should be the top priority. Social mobilization is necessary to sustain support for TB control. This is best accomplished when many partners are mobilized to demand effective TB control for their communities.

Community Involvement

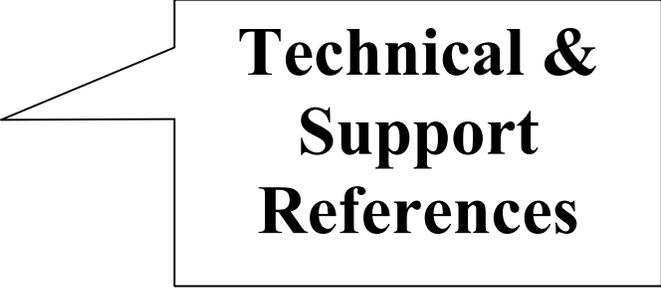
In many places, access to health care is difficult and there are not enough health workers, so other approaches, outside the clinic and hospital setting, are needed to make TB care more widely available. It is essential that such programs be carried out in collaboration with the National TB Control Program. The need for more accessible and convenient TB treatment is particularly acute in sub-Saharan Africa, where the combination of severe resource constraints and the rise in TB cases fueled by HIV is straining the ability of government health services to cope.

Convenient and accessible TB treatment and care are essential. Providing TB care in the community is one approach. The challenge is to do this in ways that contribute to community development and that are effective, acceptable, affordable and high quality. In many countries, community leaders and volunteers contribute to TB control programs by becoming DOTS supporters that provides directly observed treatment to patients during the intensive and continuation phase. Communities can also raise awareness about TB transmission and treatment, provide information on when and where to seek care, and encourage TB patients to complete treatment.

Community health workers can play an important role, provided that they receive adequate support, motivation and incentives. In general, successful community approaches have been the result of:

- Accessible laboratories for sputum diagnosis
- Good collaboration between general health services, the TB control program and the community
- Good education of the TB patient and his or her family
- Good training for community DOTS supporters as well as health workers
- Good systems of supervision of community DOTS supporters by TB program staff
- Reliable supply of quality anti-TB drugs to the PHC center

5 Annex - references



Technical & Support References

- **Essential References**
- **Web-Sites**
- **Annotated Bibliographies**
- **Ordering Information**
- **E-Mail Contacts**

and more...

5.a Introduction

Each section of the TRMs has a corresponding reference section in this annex, and it follows the same order as the main document. The technical support areas are listed first, followed by the technical intervention areas. Each section begins with a box containing the most essential references for that technical area, followed by a longer list of references and resources, along with their contact information. Many of these references are now web-based and contain their highlighted (in blue) “hyperlinked” website address. To access them, use an electronic copy of this document (which you can access from our website: <http://www.childsurvival.com/documents/usaid.cfm>). Simply click on the blue highlighted website address of the reference that you want to find in this document, and you will automatically be connected to that site/reference online. Another option is to be online using your browser, and manually cut and paste/or type in the website address for the reference you want to find from this document.

Some of the references still remain available only in hard copy, and an attempt has been made to provide information on how to obtain them. All documents published under USAID-funded projects can be obtained from USAID’s Development Experience Clearinghouse (DEC), <http://www.dec.org>. The order number of each document begins with PN- or PD- and appears in parentheses at the end of the citation.

This reference list is by no means the last word on any of these interventions or cross cutting strategies. This annex can not possibly be exhaustive, but rather can help steer the user in the right direction when researching these areas.

This is a dynamic list, as are the TRMs in general. We ask that throughout the year you provide us with information on the availability and usefulness of each entry, as well as additional resources that you think should be added to this list, as appropriate, so that next year we can continue to update it. Please send comments and recommendations to Michel Pacque at CSTS mpacque@macroint.com.

5.b Capacity Building

Essential References

Christian Reformed World Relief Committee (CRWRC), 1997. Lessons from NGOs around the World: Partnering to Build and Measure Organizational Capacity. Available at minimal cost from CRWRC, phone (616) 224-0806.

VanSant, J and R. Norem. PVC's Support of PVO Capacity Building: Assessment. Produced by AMA Technologies. April 2000. Development Experience Clearinghouse, order # PD-ABS-397.

Lusthaus, C. et al. 1999. Enhancing Organizational Performance: A Toolbox for Self-Assessment. International Development Research Centre. Ottawa, ON, Canada. (see ordering information for directions on ordering IDRC documents in the U.S.)

Brown, L. A. LaFond, and K. Macintyre, 2001. MEASURING Capacity Building http://www.dec.org/pdf_docs/PNACM119.pdf

The Health Manager's Toolkit (part of the Manager's Electronic Resource Center) <http://erc.msh.org/index.cfm>, or send e-mail for information to toolkit@msh.org

Measuring Institutional Capacity: Recent Practices in Monitoring and Evaluation. USAID Center for Development and Evaluation. 2000, No 15 http://www.dec.org/pdf_docs/pnacg612.pdf

The International Forum for Capacity Building is a global initiative launched by Southern NGOs (SNGOs) from Asia-Pacific, Africa and Latin America in an effort to focus on key future priorities of capacity building for SNGOs to enhance their effectiveness in addressing issues of poverty, marginalisation, democratisation and strengthening of civil society, human rights and sustainable human development.

The Centre for Development and Population Activities (CEDPA). The CEDPA Training Manual Series. Copyright 1995: CEDPA; 1400 Sixteenth Street, N.W., Suite 100; Washington, D.C. 20036. Tel: 202-667-1142, Fax: 202-332-4496, e-mail: cmail@cedpa.org

USAID/BHR/PVC. New Partnership Initiative, NPI Resource Guide. Chapter 3: Local Capacity Building. www.dec.org/...../...-public/display.info

AIDSCAP Latin America and Caribbean Regional Office, Family Health International. Capacity Building. Synopsis. AIDSCAP / USAID, 1998.

The DOSA page is dedicated to helping PVOs and NGOs develop new methods to identify organizational strengths and weaknesses, interpret highly valuable data generated by the process and to translate findings into action plans for meaningful change.

DOSA Website: <http://www.edc.org/INT/CapDev/dosapage.htm>

Inventory of Country Program needs and Assets in Institutional Strengthening/Capacity Building—developed by PCI as a tool for assessing the ability of its country offices to build capacity, this tool is posted for review on the CSTS Website. [www.childsurvival.com]

Capacity Resources Tool Bank—a visual map of the variety of actors that participate in a child survival program, the user can click on any specific actor to link to additional resources for assessing or building capacity at that specific level. [www.childsurvival.com]

Many of PVC's capacity-building initiatives for NGOs and success stories are described in greater detail in individual descriptions available from PVC. Also visit the PVC website at http://www.info.usaid.gov/hum_response/pvc

5.c Sustainability and Finance

Essential References

"Growing your Organization: A Sustainability Resource Book for NGOs". <http://www.iyfnet.org>

Lassen, C. 1999. The Pillars of NGO Financial Sustainability: Options to Create More Sufficient, Diversified, Stable Financing for Your Non-Profit. Sustainable Development Services Project. Lassen@erols.com.

USAID/Africa Bureau, 1999 Health and Family Planning Indicators: Measuring Sustainability. Washington: USAID

Thompson B, Winner C. Durability of Community Intervention Programs. Definitions, empirical studies, and strategic planning. In: Bracht N, editor. Health promotion at the community level 2. New advances. 2nd ed. ed. Sage Publications, Inc., 1999:137-154.

"Keeping Your Organization Sustainable" [<http://erc.msh.org/sustain/>]

The African Development Foundation (ADF) is the principal agency of the U. S. Government that supports community-based, self-help initiatives that alleviate poverty and promote sustainable development in Africa. <http://www.adf.gov/>

<http://www.createhope.org/>

Management Sciences for Health would like to announce the publication of the Spanish edition of CORE, a powerful spreadsheet-based tool designed to help health and family planning managers improve the efficiency and financial viability of their services. <http://www.msh.org>

ACSI-CCCD Africa Child Survival Initiative - Combating Childhood Communicable Diseases, University Research Corporation. Sustainability Strategy. 1990;

Creese Andrew & Parker David. Cost analysis in primary health care. A training manual for programme managers. W.H.O., UNICEF & the Aga Khan Foundation. W.H.O., Geneva, 1994.

Dave Sen, Priti, and Peter Berman. 1990. The costs and financing of health care: Experiences in the voluntary sector. Case study 1—The voluntary health services, Madras. City: The Ford Foundation.

Dave Sen, Priti, and Peter Berman. 1990. The costs and financing of health care: Experiences in the voluntary sector. Case study 2—Sewa—rural Jhagada. City: The Ford Foundation.

Dave Sen, Priti, and Peter Berman. 1990. The costs and financing of health care: Experiences in the voluntary sector. Case study 3—Parivar Seva Sanstha, New Delhi. City: Ford Foundation.

Dave Sen, Priti, and Peter Berman. 1990. The costs and financing of health care: Experiences in the voluntary sector. Case study 4—Ashish Gram Rachna Trust, Pachod. City: Ford Foundation.

- DeRoeck, D. 1999. Making NGOs more sustainable: A review of NGO and donor efforts. Special Initiatives Report, Partnership for Health Reform Project. Bethesda, MD: Abt Associates Inc.
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- LaForgia, G., and Stephen Heining. 1992. The potential for sustained provision of health services by sector PVOs in the Dominican Republic. Technical Report No. 9, Health Financing and Sustainability Project. Bethesda, MD: Abt Associates Inc.
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- Private Initiatives for Primary Healthcare Project. 1997. Lessons learned in the initiatives project 1992–1997. Arlington, VA: John Snow, Inc.
- Pulley, C., B. Hoffman, John Rigby, et al. 1993. Endowments as a tool for financial sustainability: A manual for NGOs. Arlington, VA: Promoting Financial Investments and Transfers (PROFIT).
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- Monitoring and evaluating project sustainability. In: Valadez J., Bamberger M., editors. Monitoring and Evaluating Social Programs in Developing Countries; A handbook for policymakers, managers and researchers. Washington, D.C.: Economic Development Institute of The World Bank, 1994:183-208.

5.d Management and Logistics

Essential References

<http://erc.msh.org/toolkit>

Family Planning Management Development

[\[http://www.msh.org/fpmd/main/fpmdhome.html\]](http://www.msh.org/fpmd/main/fpmdhome.html)

Health Planning for Effective Management. Reinke, William A. (editor), New York: Oxford University Press, 1988

Pocket Guide to Managing Contraceptive Supplies, CDC/JSI Family Planning Logistics Management <http://www.cdc.gov/nccdphp/drh>

www.avsc.org

The DELIVER Project focuses on family planning and logistics management (FPLM). <http://www.deliver.jsi.com> The following documents, handbooks, software, papers, and country reports can be obtained from DELIVER free of charge. Contact deliver_pubs@jsi.com or call Steve O'Reilly at (703) 528-7474.

The Logistics Handbook: A Practical Guide for Supply Chain Managers in Family Planning and Health Programs

The Contraceptive Forecasting Handbook for Family Planning and HIV/AIDS Prevention Programs

Software: Pipeline Monitoring and Procurement Planning

Family Planning Management Development, [\[http://www.msh.org/fpmd/main/fpmdhome.html\]](http://www.msh.org/fpmd/main/fpmdhome.html)

PHC MAP documents [\[http://erc.msh.org/index.cfm\]](http://erc.msh.org/index.cfm)

More practical, the manager's electronic resource center offers a wide array of tools and state of the art information on management questions. Resources are also available in French and Spanish.

Recent additions [\[http://erc.msh.org/toolkit/map.htm\]](http://erc.msh.org/toolkit/map.htm) include tips on better management, problem solving and computers.

The Family Planning manager web page. [\[http://www.msh.org/publications/fpmd_pubs.html\]](http://www.msh.org/publications/fpmd_pubs.html)

The Family Planning Logistics Management Project. "Concepts of Logistics System Design", Richard C. Owens Jr. & Timothy Warner, 1996. John Snow, Inc.

On Being in Charge, A guide for middle-level management in primary health care remains an classic and useful reference. Available from WHO. Translated in French and Spanish.

Barnett L., and F. Abbatt. District Action Research and Education: A Resource Book for Problem Solving in Health Systems. London: Macmillan, 1994.

Allison M., Kaye J. Strategic planning for Nonprofit Organizations: A practical guide and workbook. Support Center for Nonprofit Management. Wiley Nonprofit Series. 1997.

5.e Behavior Change Interventions

Essential References

THE COMMUNICATION INITIATIVE partnership

<http://www.comminit.com/index.html>

Stetson, Valerie and Rob Davis. Health Education in Primary Health Care Projects: A Critical Review of Various Approaches. Washington, D.C.: CORE 1999.

Murray, John, et al. Emphasis Behaviors in Maternal and Child Health: Focusing Caretaker Behaviors to Develop Maternal and Child Health Programs in Communities: Technical Report. Arlington VA: BASICS Project Academy for Educational Development, September 1997. (already listed and annotated).

Community Centered Approaches to Behavior and Social Change: Models and Processes for Health and Development. Washington D.C.: CORE/NGO Networks for Health, 2000.

The CHANGE Project <http://www.changeproject.org/>

Bridging the Gap Between Communities and Service Providers: Developing Accountability Through Community Mobilization Approaches. By Lisa Howard-Grabman, Save the Children.

The Basic Education and Policy Support (BEPS) Activity is a new, worldwide, five-year effort by the U.S. Agency for International Development (USAID) to help developing and newly independent nations to improve the quality, access to, management and effectiveness of their educational systems, particularly non-formal and formal basic education systems. <http://www.beps.net/>

Education Development Center, Inc. (EDC) is a non-profit education and health organization that brings researchers and practitioners together to create tools and conditions for learning, is committed to education that builds knowledge and skill, makes possible a deeper understanding of the world, and engages learners as active, problem-solving participants. <http://www.edc.org/>

De Negri, Berengere, Lori DiPrete Brown, Orlando Hernandez, et al. 1997. Improving Interpersonal Communication Between Health Care Providers and Clients. Johns Hopkins University School of Public Health; Academy for Educational Development. Washington: USAID (PN-ACE-294). http://www.dec.org/pdf_docs/pnace294.pdf

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- Favin, Michael and Carol Baume. A Guide to Qualitative Research for Improving Breastfeeding Practices. Washington D.C.: The Manoff Group and Wellstart International, Expanded Promotion of Breastfeeding (EPB) Program, June 1996.
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5.f Quality Assurance

Essential References

This reference is the basic “need to know” information if you want to start doing QA/QI at the country level. www.qaproject.org

Bouchet, B. 2000. The health manager's guide for monitoring the quality of primary care. Health Manager's Guide Series . Published for the United States Agency for International Development (USAID) by the Quality Assurance Project (QAP): Bethesda, Maryland.

MacAuley, C., et al. 2000. Institutionalization of Quality Assurance. Project Report. Published for the United States Agency for International Development (USAID) by the Quality Assurance Project (QAP): Bethesda, Maryland.

Quality Assurance of Health Care in Developing Countries L Brown, L Franco, N Rafeh, T Hatzell QA Project, Center for Human Services, Bethesda MD, 2nd ed., 1998

The following materials are in draft and may be received by contacting gapdissem@urc-chs.com.

Standards monograph—overviews the purpose and sources of standards, types of standards; proposes a method for standards development and communication

Quality Improvement reference materials—focuses on a methodologic approach to improving quality using 4 steps: 1. Identify—determine what needs to be improved. 2. Analyze—understand the situation or problem. 3. Develop—hypothesize about what changes will improve the problem. 4. Test/Implement—test the hypothesized solution to see if it yields improvement—based on these results, decided whether to abandon, modify or implement the solution. These steps are illustrated in 4 different approaches which vary in complexity: 1. Individual decision making, 2. Rapid team problem solving, 3. Systematic team problem solving (which focuses on root cause analysis) and 4. Process improvement (which involves a stable team monitoring and improving a process it owns). Field case examples are used to explain both the method of QI and the various approaches. Tools and techniques used for generating ideas, analyzing systems and processes, displaying and analyzing data, and planning are presented, with details about when and how to use each.

Note: The Primary-Health Care Management Advancement Program (PHCMAP) is another excellent resource on Quality Assurance. See the full reference for this resource in the General Reference Material section of this document.

5.g Monitoring and Evaluation

Essential References

Compendium of Child Survival Monitoring and Evaluation Tools

http://www.cpc.unc.edu/measure/techassist/tools_methods/inventory/inventory.html

MEASURE Evaluation - Compendium of Maternal and Newborn Health Tools

<http://www.cpc.unc.edu/measure/cmnht/cmnht.html>

Center for Development Information and Evaluation. "Performance Monitoring and Evaluation TIPS. Washington: USAID. http://www.dec.org/usaaid_eval/#004

Knowledge, Practices and Coverage Survey - KPC 2000+ Includes Rapid CATCH, (October 2000 edition) and field guide. The Child Survival Collaborations and Resources Group (CORE) and The Child Survival Technical Support Project

<http://www.childsurvival.com/kpc2000/kpc2000.cfm>

Winch, Peter J., et al. 2000. Qualitative Research For Improved Health Programs: A Guide to Manuals for Qualitative and Participatory Research on Child Health, Nutrition and Reproductive Health. SARA Project, HHRAA Project, USAID, in collaboration with Department of Int. Health, Johns Hopkins University. French. E-mail:

sara@aed.org. <http://www.aed.org>

Aubel, Judi. 1999. Participatory Program Evaluation Manual: Involving Program Stakeholders in the Evaluation Process. Child Survival Technical Support Project and Catholic Relief Services. <http://www.childsurvival.com>. English, French, and Spanish.

Espeut, Donna. KPC 2000 FIELD GUIDE, August, 2001. CORE MEWG and Child Survival Technical Support Project. http://www.childsurvival.com/kpc2000/FldGuide8_01.doc

The Integrated Community Epidemiological System/El Sistema Epidemiologico Comunitario Integral (SECI): Local Participation in Community Health Assessment and Planning in Rural Bolivia, Summary of Preliminary Findings, November 9, 1999, Cynthia P. Willis, Dirk G. Schroeder, Lisa Howard-Grabman, David Marsh, Rollins School of Public Health at Emory University, Atlanta, Georgia, and Save the Children Federation, Washington, DC.

The International Data Base (IDB) is a computerized data bank containing statistical tables of demographic and socio-economic data for 227 countries and areas of the world. The IDB contains the U.S. Census Bureau's International Programs Center's current estimates and projections of fertility, mortality, migration and population for each year through 2050. <http://www.census.gov/ipc/www/idbnew.html>

Internet Resource Guide to Performance Measurement, USAID/PPE/CDIE/ PME.
http://www.dec.org/pdf_docs/Pmenews_0700.pdf

Center for Disease Control and Prevention. 1999. Framework for Program Evaluation in Public Health. Morbidity and Mortality Weekly Report, Vol. 48, No. RR-11. Down load in PDF format from
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Gosling, Louisa and Michael Edwards. 1998 [1995]. Toolkits: A Practical Guide to Assessment, Monitoring, Review and Evaluation. (Development Manual 5), reprint. London: Save the Children (Mary Datchelor House, 17 Grove Lane, London, UK SE5 8RD).

Team Technologies. PCM Resource Guide 2000. Team Technologies, Inc., 205 East Washington Street, Middleburg, VA 20118-0309, 1.540.687.8300/fax 1.540.687.3020,
<http://www.teamusa.com/>

PVC RFA 1999 Results Framework Overview
<http://www.childsurvival.com/documents/ppt/results/index.htm>

SAVE The Children: Results Framework & Performance Monitoring
<http://www.childsurvival.com/whatsnew/rfpm97/sld001.htm>

PVC RFA 2000: CARE's Presentation - Logframe
http://www.usaid.gov/hum_response/pvc/wkshpcarepres.pdf

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

Brown, Lisanne, LaFond, A. and Macintyre, K. October 2000 (Draft). MEASURING Capacity Building. MEASURE Evaluation (HRN-A-00-97-00018-00), Tulane University, 1440 Canal Street, Suite 2200, New Orleans, LA 70112. Tel. (504) 584-3655. www.cpc.unc.edu/measure

Office of Sustainable Development. 1999. Health and Family Planning Indicators. A Tool for Results Frameworks, Volume 1. Measuring Sustainability, Volume 2. Washington: USAID.
<http://www.usaid.gov/regions/afr/pubs/health.html> and
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Primary Health Care Management Advancement Programme (PHC MAP). 1993. URC/CHS and AGA Khan Health Services. PHC MAP series of Module, Guides and Reference Materials (Aga Khan Foundation USA, 1901 L Street, N. W., Suite 700, Washington, D.C.). Available on line at
<http://erc.msh.org>

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Malaria Training Materials available from WHO include Diagnosis of Malaria, Case Management, Vector Control, Community and School-based activities, General, Programme Management, and Epidemiology

For further information, kindly contact the office of
Dr Elil Renganathan
Coordinator, Social Mobilization and Training (SMT)
Department of Control, Prevention and Eradication (CPE)
Programme of Communicable Diseases (CDS)
Tel: +41 22 791 3828 or 3829 or 4566

From CORE: KPC Malaria module and Rapid CATCH.

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