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Behavior Change Perspectives and Communication Guidelines on Six Child Survival interventions

Renata Seidel



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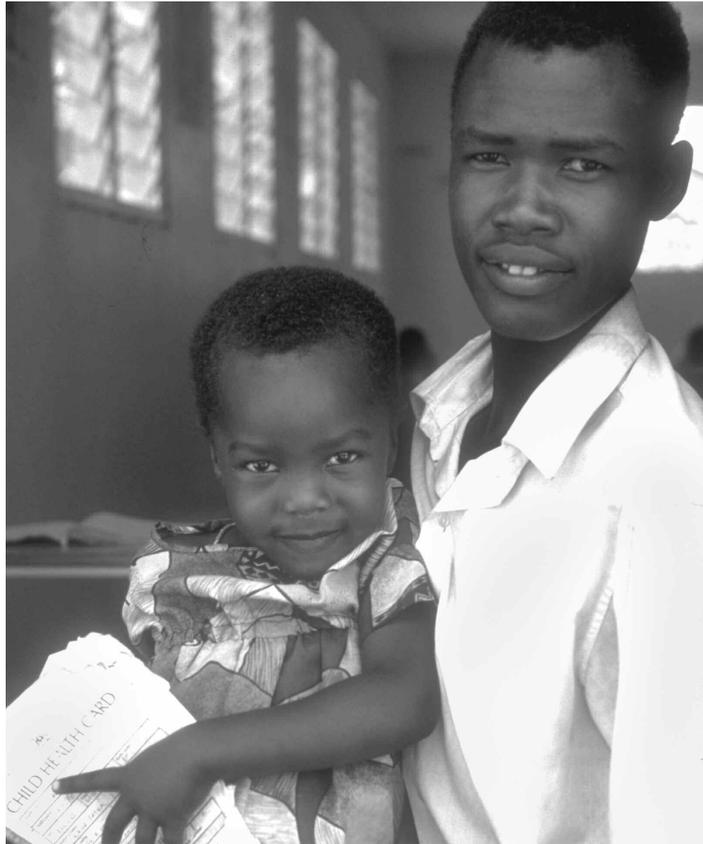
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2005

*Renata Seidel**

**Academy for Educational Development*



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Abbreviations and Acronyms

ACT	Artemisinin-based Combination Therapy	IMCI	Integrated Management of Childhood Illness
AFASS	Acceptable, Feasible, Affordable, Sustainable, and Safe	IPT	Intermittent Preventive Treatment
AIDS	Acquired Immuno-deficiency Syndrome	IRS	Indoor Residual Spraying
ANC	Antenatal Care	ITM	Insecticide Treated Material
ARI	Acute Respiratory Infection	ITN	Insecticide Treated Nets
BCC	Behavior Change and Communication	LAM	Lactational Amenorrhea Method
BCG	Bacille Calmette-Guerin	LBW	Low Birth Weight
CDD	Control of Diarrheal Disease	LLIN	Long-lasting Insecticidal Treated Net
CHW	Community Health Worker	MIS	Management Information System
CQ	Chloroquine	MOH	Ministry of Health
DPT	Diphtheria-Pertussis-Tetanus	MTCT	Mother-To-Child Transmission
ENA	Essential Nutrition Actions	NGO	Non-governmental Organization
EPI	Expanded Program on Immunization	NIDS	National Immunization Days
FCHV	Female Community Health Volunteer	OPV	Oral Polio Vaccine
FES	Focused Ethnographic Assessment	ORS	Oral Rehydration Salts
GAVI	Global Alliance for Vaccines and Immunization	ORT	Oral Rehydration Therapy
HB	Hepatitis B	OTC	Over the Counter
Hib	Haemophilus influenzae type b	PMTCT	Prevention of Mother-To-Child Transmission
HIS	Health Information System	PMV	Patent Medicine Vendor
HIV	Human Immuno-deficiency Virus	PVO	Private Voluntary Organization
HW	Health Worker	Q&A	Question and Answer
IEC	Information, Education, and Communication	RED	Reaching Every District
		RBM	Roll Back Malaria

RUTF	Ready to Use Therapeutic Food
SP	Sulfadoxine-Pyrimethamine
STD	Sexually Transmitted Disease
SSS	Sugar Salt Solution
STI	Sexually Transmitted Infection
TBA	Traditional Birth Attendant
TT	Tetanus Toxoid
UNICEF	United Nations Children Fund
USAID	United States Agency for International Development
VA	Vitamin A
VAD	Vitamin A Deficiency
WHO	World Health Organization



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Executive Summary

This document is meant for those who want to incorporate behavior change and communication strategies into their child survival programs, as well as those who already plan and carry out such activities. It focuses on six major interventions and the key practices associated with these. It examines the challenges associated with improving these practices in developing country contexts, and aims to provide insight into how to design effective strategies.

Over the last two to three decades, behavior change and communication approaches have contributed to substantial improvements in the health status of children in the developing world. (See box on next page.) Many significant gains were made in the 1980s and 1990s in home use of oral rehydration therapy, completion of childhood immunizations, breastfeeding and other nutrition-related practices, timely careseeking for acute respiratory infections and malaria, and various home hygiene and sanitation measures. Systematic communication strategies based on an understanding of the beliefs, barriers, and

motivations of families clearly helped bring about the reductions in mortality seen in many countries.

In recent years the impressive gains in child survival have leveled off; in sub-Saharan Africa and South Asia some positive trends have even reversed. Reasons vary by country and include worsening economic disparities, armed conflict, and the human and structural degradation caused by HIV/AIDS. Worldwide attention has also been drawn away from child survival. Governments as well as donors have shifted funding from many of the primary interventions. In 2003 more than ten million children died from causes that are largely preventable—exceeding deaths due to HIV/AIDS, malaria, and tuberculosis combined.¹

The public health community is now re-examining its commitment to child survival. This reassessment should include a review of what we have learned about the communication challenges associated with the major child survival interventions. It should also include a re-emphasis on how behavior change and communication strategies at multiple levels can

¹ Black et al. 2003.

contribute to child health. This paper attempts to help address that need.

A TIME TO RE-ASSESS

A major aim of this document is to move communication programs beyond *demand creation* to a systems view of behavior change. To many theorists it may seem this objective was accomplished long ago. In the last 20 years health communication methodologies successfully shifted our focus to the perspective of the family—the immediate caretaker and decision maker as well as others in the broader community who influence health-related choices. An array of behavioral models,

as well as lessons from applying these in developing country settings, have also helped us design strategies that respond to parents' concerns and offer benefits they value. We have adopted the “consumer’s perspective,” as social marketers say.

At the same time, a focus on the family has not advanced the behavioral component of many child survival programs beyond *promotion of products and services*. This is partly because governments tend to relegate any discussion of behavior change to functions such as Information/Education/Communication (IEC) or community-based activities, which they typically take up as final steps in health program design when

CONTRIBUTING TO RESULTS

Communication and community-based behavior change programs have had significant impact on large populations across all the child survival interventions.

Diarrheal Disease A combination of radio and health worker training programs introduced ORS to Honduras in the 1980s. Within two years, 60 percent of rural women reported trying the product; 35 percent of all cases were treated with ORS.

Acute Respiratory Infections A program in Nepal trained community health volunteers to educate communities and actively detect and treat ARI among young children. The initial pilot, which began in 1987, led to a 28% reduction in the risk of death from all causes by the third year of services. The program has scaled up to 14 districts, saving thousands of lives each year.

Nutrition In Madagascar, radio, traditional and popular media, and a facility-based intervention all contributed to an increase in exclusive breastfeeding during the first five months of life. In 2001 (after 22 months of intervention), rates improved from 46 to 83 percent in ten target districts.

Measles Immunization In the Philippines, a mass media campaign focused on measles as a “hook” to bring children into the regular EPI service system. The six-month nationwide urban campaign in 1990 increased measles coverage of 9- to 23-month olds from 54 to 68 percent and also increased complete immunization rates as well as timeliness of completion.

Newborn Health In Gadchiroli district, India, training programs specially tailored for low-literate village health workers supported a newborn care pilot in the mid-1990s that brought about a 62 percent reduction in neonatal mortality compared to control villages. Deaths due to infection declined from 16.6 to 2.8 percent (of all newborn deaths) over three years.

Malaria In the Tigray region of Ethiopia, mother coordinators taught women in their own communities to recognize symptoms of malaria and promptly treat them with antimalarials available from the volunteers. In 1997, after the program's first year, the percent of child deaths due to malaria dropped to 19 percent (of all child deaths), in contrast to 57 percent in the control area.

(See the chapters that follow for details and sources.)

crucial decisions (other than which media materials or social mobilization activities to fund) have already been made. A very legitimate focus on the *family's perspective* can also make those involved in “communication” or “community-based activities” forget the importance of players at other levels and the possibility of affecting *their* behaviors.

The formal “lists” of key practices laid out for different interventions deal primarily with caretakers. These actions are linked by a solid base of evidence to the health outcomes that programs are targeting. A subset of these behaviors is usually assigned the status of program indicators.

However, we know that assuring performance of these “lists” will probably require attention to health providers, to community volunteers, to pharmacists, to district officers, to policy makers. These other audiences/actors (whom we usually term secondary) may in fact deserve the *most* attention in some contexts, depending on where problems—and promise of solution—lie. Planners always face a difficult task in weighing the importance of different factors and deciding where scarce funds should be targeted. Programs implemented at large scale must be lean. Communication planners, like other child survival experts, must be aware of how one piece of the system (or rather one player) affects another, and make difficult choices within that broader perspective.

The corollary of a systems view is that behavior change and communication experts must be knowledgeable and credible in the health areas in which they work. Without being immunization or nutrition or malaria experts, they must understand how an intervention is supposed to be delivered, how it *is* delivered, who the players are at different levels, what the coverage data are, and what the reasons are for both successes and gaps. Such understanding also assures that a communication expert is able to talk the same language as his or her technical counterparts, and in

turn is more likely to be included early in planning processes.

BEHAVIOR CHANGE, SOCIAL CHANGE, AND COMMUNICATION

This document does not look at the merits of different behavioral theories or explain the mechanics of specific state-of-the-art approaches. It discusses the behavioral issues and a range of key determinants for major audiences in each child survival area, and refers generically to “behavior change” and often “communication” or “community-based approaches” as an array of different tools. These vary substantially and include frameworks such as social marketing, and techniques such as social mobilization, enter-education, advocacy, and participatory training. References to certain methodologies are made throughout the chapters. But this is not a how-to manual. A bibliography at the end of the *Introduction* and each intervention chapter provide more detail on implementation approaches.

Child survival interventions aim to achieve improvements on a large scale and to sustain these over time. Their ultimate goal is to bring about shifts in social norms. This requires the direct involvement of communities at many levels. However, *social and community* approaches are often thought of as arising from principles distinct from those aimed at changing *individuals*. Collective action is motivated in different ways, and leads to fundamental social benefits beyond those captured by health indicators. The need for a combination of approaches is reflected most vividly in this document as we stumble time and time again upon the importance of improving “relations” among different groups—families and health workers, health workers and community volunteers, and so forth. In areas of highest risk, the pressures on human and structural resources are most extreme. The ability to solve problems collectively—to find transportation for

a pregnant woman or to supply kerosene to maintain the local cold chain—is critical.

As we shift our attention from audience to audience we easily forget that building partnerships and strengthening communication between them is likely to be the most important factor of all. All behavior change programs must help bridge this gap between individual and social change perspectives.

THE INTERVENTIONS

This document focuses on interventions targeting the major causes of mortality in the 42 countries claiming 90 percent of global child deaths in 2000.² These same interventions are the subject of a series of papers in the *Lancet* in 2003. They include:

- Newborn/neonatal health
- Childhood immunization
- Control of acute respiratory infections
- Control of diarrheal disease
- Malaria prevention and treatment
- Nutrition

Although the chapters that follow begin with what we used to call “vertical” slices of child health, the reality is that most children die from multiple, interrelated causes. Each section discusses the important overlapping disease and behavioral issues.

Rarely is a child’s death the result of a single episode of illness. Children die from the cumulative effects of multiple disease processes. Nutritional problems contribute to more than half of child deaths.³ Research has also shown that gaps in coverage of certain interventions are more likely among malnourished populations. Equity issues lie at the heart of child survival. Those who are at risk are almost

always vulnerable economically, socially, and have poorest access to services designed to help. A behavioral program should always begin with a population view, just as an epidemiologist does, and consider the major causes of disease, who is at greatest risk, and who is not being reached. Although underlying factors cannot always be targeted directly, any program that loses sight of these is unlikely to make a difference. In addition, as programs become successful and increase their focus on those truly “left out,” behavior and communication strategies may require fundamental changes.

² Black et al. 2003.

³ Bryce et al. 2005.

1 Introduction



In the 1980s and 1990s, behavior change strategies helped bring about significant improvements in child health practices throughout the developing world. Social marketing and communication approaches played critical roles in launching new products such as oral rehydration salts and vitamin A capsules, in raising immunization rates, influencing changes in deeply held beliefs and customs regarding breastfeeding and child nutrition, and changing careseeking patterns for child illnesses. Evaluations demonstrated the impact of mass media on beliefs as well as behaviors. Community-based strategies designed to serve those hardest to reach and most vulnerable used tailored training programs and materials to empower semi-literate volunteers to

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influence health practices in their own neighborhoods.

Those decades were a period of seemingly continuous innovation in a number of the major child survival interventions. Ministries of health began to recognize the need to incorporate systematic health communication and community-based approaches in their programs, and the U.S. Agency for International Development (USAID) and others invested in “institutionalizing” some of these capacities in developing country organizations.

We are now acutely aware that those days are over. In recent years the impressive gains in child survival have plateaued; in sub-Saharan Africa and South Asia some positive trends have even reversed. Reasons vary

by country and include worsening economic disparities, armed conflict, and the human and structural degradation caused by HIV/AIDS. Worldwide attention has also been drawn away from child survival. Governments as well as donors have shifted their funding from many of the primary child survival interventions. In 2003, more than 10 million children died of causes that are largely preventable—exceeding deaths due to HIV/AIDS, malaria, and tuberculosis combined.¹

The public health community is now re-examining its commitment to child survival. This reassessment should logically include a review of what we have learned about the communication challenges associated with the major child survival interventions. It should also include a re-emphasis on how behavior change and communication strategies at multiple levels can contribute to child health.

WHAT EVERY MINISTER OF HEALTH KNOWS

Every minister of health knows that his (or her) program investments will amount to little if the public doesn't actually turn up at a campaign to vaccinate children against polio, at a health week distributing vitamin A, or at a clinic offering services to pregnant women. The budget for major program efforts often includes a line item for social mobilization or program communication—for posters, leaflets, and perhaps radio announcements or traveling theater troupes. *Demand* will be created and the public will be mobilized. People will be counted. *Results* will be measured. In the unfortunate circumstance that a rumor begins to circulate about some product or service, or an adverse event occurs in connection with the program, the minister (or the district health officer) may call on a

communication expert to find creative ways to influence public opinion and minimize the damage.

Demand creation and *damage control* are the two certainties of health communication. These two processes seem especially congenial to child survival programs. We already think of the child as a passive beneficiary and the family as responsible for using information and services supplied by the government on the child's behalf. The parents (usually the mother) are expected to bring the child for vaccinations, to use proven products like impregnated bednets and oral rehydration salts, to seek help when they recognize danger signs, and to comply with treatment instructions. In fact, *compliance* is still a good term for what we tend to expect of parents—unlike the complex decision-making we associate with family planning or HIV/AIDS prevention, for example.

We know every parent wants what's best for his or her child and would go to great lengths to avoid harm. So we may assume these health choices are easier than those tackled by other interventions (like condoms or abstinence perhaps). Or that our programs are not up against complex social issues (such as stigma). We may expect clear information and motivation to be enough.

Of course, child survival experts have been saying for decades now that information is not enough. Knowledge is not enough. Demand creation (and damage control) can go only so far in affecting the key behaviors associated with lowering child mortality. Nevertheless, in most child survival programs, the budget—and more importantly the planning process—still consider health communication, and even behavior change *per se*—primarily as tools for rounding up the public.

¹ Black et al. 2003.

THE CONTRIBUTION OF THEORIES— THE VALUE OF EXPERIENCE

Why is it that behavioral theory has advanced so far and some programs have achieved such impressive results, while many often seem to “go through the motions”?

One reason is that behavioral *research* can seem complex—requiring special expertise, time, and money. Translating the results into practical program decisions is not easy. Another challenge is the long lists of key practices associated with child survival and the sheer task of trying to prioritize and understand even a few of these during a typical three- or five-year project. Yet another is the difficulty of transforming pilots that were successful in limited geographic areas into strategies that are feasible, affordable, and effective at reaching large populations over the long term. Programs at scale must be lean and targeted at what makes a difference.

These pages discuss the behavioral issues and a range of key determinants for major audiences in each child survival area. They attempt to share some of what has already been learned and published about “what works,” innovations that have been tried at smaller scale, and perspectives about critical gaps and promising areas for new communication strategies. Every program must, of course, begin with its own situational analysis. But the insights we have already gained through years of field experience should also be put to use.

This document is not an exposition on the different theories of behavior change. It does not try to explain the mechanics of any state-of-the-art approaches. “Communication” is sometimes used generically in these pages to encompass a range of different methodologies that vary substantially.

Ministries of Health usually refer to those who work in any aspect of behavior change activities as their communication experts, however—or sometimes as their behavior change communication (BCC) experts. These people may be restricted to the production of materials. Or, they may become involved in managing behavioral research and designing programs to negotiate home health practices, improve health provider counseling, support the training of private or informal providers, improve product instructions, conduct advocacy efforts, or coordinate community mobilization through NGOs or local civic groups. We comment on a number of specific approaches in the different chapters. But this is not a how-to manual. A bibliography at the end of this document provides more detail on implementation approaches.

THREE SIMPLE PRINCIPLES

A Systems View

Several principles have emerged from this study. The first is that successful behavior change programs are based on a health *systems* view.² It has almost become a platitude that communication programs analyze multiple audiences at multiple levels. Typically we may look at the behaviors or influence of:

- Families (mothers, fathers, mothers-in-law, siblings)
- Health providers (health professionals, community-based workers)
- Private practitioners (both licensed and unlicensed)
- Product manufacturers, distributors, and retailers
- Policymakers

Programs usually start at the family level and work their way upwards as funds allow. They look at health belief systems, symptom recognition and careseeking,

² “Systems” here does not refer to health services or the health bureaucracy, but to the need for a holistic view of child health and the many actors who contribute.

provider preferences, product perception and usage, and household decision-making. Family behaviors and their various determinants may be dissected in great detail. At the health provider level, programs may improve interpersonal skills and create helpful job aides. Advocacy activities may involve community leaders or policy makers.

Our basic assumption, however—that the family is central to the health of a child—leads us logically toward demand creation activities and sometimes no farther. The formal “lists” of key practices laid out for different interventions deal primarily with caretakers. A subset of these behaviors is often assigned the status of program indicators. We may become mesmerized by this list and miss the fact that the behaviors of another group are *central* to given health outcomes. We may fail to look closely enough at the determinants of *their* behaviors. This is evident in many of the chapters that follow.

One reason for this may be ministry or donor expectations that the job of communication is to create demand. Another may be that we often don't understand the intervention and its gaps well enough. Communication program managers cannot always be immunization or nutrition or malaria experts, but they must make it their business to understand the challenges at different levels of the system. This credibility will also increase the chances they will be invited to the planning table.

Working Together

In areas of highest risk, the pressures on human and structural resources are most extreme. The ability to solve problems collectively—to find transportation for a pregnant woman or to supply kerosene to maintain the local cold chain—is fundamental. Time and time again in these chapters we stumble across the need to

“improve relations” among different groups—whether between families and health workers, health workers and community volunteers, or across different layers of the health system. However, as we shift our behavioral microscope from audience to audience we can easily forget that building partnerships between them is often the most critical factor of all.

In designing programs, behavior specialists try to look at the full range of potential determinants—including both internal and external factors—to understand why people do what they do and how to influence their choices. External factors may include respectful treatment by providers. Choices can also be influenced by enabling factors such as social support (from peers or institutions). A recent HCP paper described some of these as “gateway factors” because they influence clusters of health behaviors. Client-friendly services, for example, may increase use of clinics for several health problems.³

External factors are the hardest to influence, particularly on a large scale. Many (like client-friendly services, or social support) are also hard to measure. What we don't measure, we tend not to take as seriously.

Community development programs generally deal with some of these factors head on. Many people believe that community approaches rely on principles distinct from (or even in opposition to) individual change approaches that are designed based on audience segmentation and qualitative research. Collective action—participatory change—is motivated through a different kind of analysis and also leads to social benefits beyond those captured by health indicators. *Individual* and *collective* processes are therefore usually left to different programs. However, health behavior change programs will not succeed if they don't find a way to cross the boundary between promoting

³ Acharya et al. 2004.

a “perception” of social support, and promoting the real thing.

Data as an Essential Medium

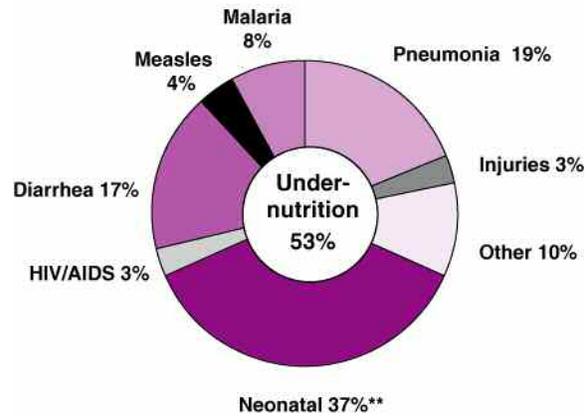
Finally, the most powerful language at a communicator’s disposal can be data. Data can educate, motivate, illuminate, and shame. Data can make the invisible (such as newborn deaths) visible. Simple numbers, when properly presented, provide communities with a mirror of their collective health, and policymakers with evidence of their responsibilities. Simple monitoring information can help district officers understand and adjust strategies to deal with coverage gaps. A few well chosen indicators can provide a feedback loop that motivates communities as well as clinics and strengthens their relationships.

Communication managers use data all of the time to inform their own decisions. They easily forget how valuable it can be for others. While it is not usually the job of communication planners to design monitoring or surveillance systems, they should find opportunities to promote their use, help refine tools, and devise ways of using the results to motivate change.

THE INTERVENTIONS

This document focuses on interventions targeting the major causes of mortality in the 42 countries claiming 90 percent of global child deaths in 2000. These same interventions are the subject of a series of papers in the

Major Causes of Death in Children Under 5*



* Yearly average for 2000-03.
** See Causes of Neonatal Mortality, p.12.
Source: Adapted from Bryce et al. 2005

Lancet in 2003.⁴ They include:

- Newborn/neonatal health⁵
- Childhood immunization
- Control of acute respiratory infections
- Control of diarrheal disease
- Malaria prevention and treatment
- Nutrition

HIV/AIDS is now responsible for about 3 percent of child deaths worldwide. Infant feeding for children of mothers with HIV is discussed in Chapter 7. Injuries (especially traffic accidents and drowning) also account for a substantial but unknown number of child deaths; however the problem has not yet received the prominence it deserves in public health agendas.⁶

⁴ Black et al. 2003; Bryce et al. 2003; Cleason et al. 2003; Jones et al. 2003; and Victora et al. 2003. (The Lancet series focuses on causes of death and additional deaths that could be averted, rather than deaths already being prevented by existing programs. However, we include basic childhood immunizations here, which is an essential part of child health services and includes vaccination against measles, which is cited by the Lancet series as a major cause of death.)

⁵ See Chapter 2 and especially page 12 for causes of death in the neonatal period.

⁶ Bryce et al. 2005 gives the yearly average as 3 percent. This varies greatly by country. In Bangladesh (Hyder et al. 2003) a study of 8,070 children under five in two rural areas and a nationwide survey conducted in 1996-97 looked at causes of death; drowning accounted for 43 percent of deaths in the cohort and 20 percent of deaths among 1-4 year olds in the national survey. Most drowning deaths were among 12-23 month olds.

Advocacy for Attention to Child Deaths

Certainly the first task for communication programs is advocacy on behalf of child survival itself. Governments and donors that have signed on to the Millennium Development goal of reducing child mortality by two-thirds between 1990 and 2015 will have to make radical changes even to achieve respectable progress. Strategies and funds are needed to strengthen the systems themselves.

According to the Lancet,⁷ global coverage for most of the proven interventions is below 50 percent. An urgent case can be made for any of the major child health areas. Piecemeal advocacy for bits of a smaller and smaller pie, however, will not restore the funding necessary or make child health a priority within finance ministries, foundations, or international donors. The mortality data are powerful; every argument in support of one program should be made within the context of this greater imperative.

The Illusion of Isolated Causes

Although the chapters that follow begin with what we used to call “vertical” slices of child health, the reality is most children die from multiple causes. Each section discusses the important overlapping disease and behavioral issues.

Neonatal health is the most explicit cross-cutting intervention. Many essential newborn practices actually take place during pregnancy. Diarrheal disease, malaria, and acute respiratory infection are linked with *environmental* health—which is often conducted as a completely separate program. Malaria is part of safe motherhood as well as child survival, but is often addressed through its own national program. Nutrition is sometimes lodged in a separate arm of the health

bureaucracy and split into separate activities (vitamin A, child feeding, fortification) because delivery channels are so different. But nutrition overlaps with *all* of the child survival areas as well as with hygiene.

At the facility level, the Integrated Management of Childhood Illness (IMCI) has replaced the vertical program perspective with a single screening and treatment algorithm. IMCI was first introduced by WHO in 1995 and is gradually being rolled out through training programs in developing countries. The protocols deal with the fact that many conditions have overlapping symptoms and also that many children have concurrent diseases. It also screens for poor nutrition as an underlying cause of illness. IMCI theoretically includes a “household and community component.” However, with the end of funding for individual child health programs, many community-based and communication programs emphasizing preventive and careseeking behaviors at the family level lost their support.

THE PROGRAM CHALLENGE— INTEGRATION AND ROLLOUT

This is a time for redefinition and reintegration of child survival for many countries. In 2000, at a UNICEF-led meeting in Durban, South Africa, key donors and non-governmental partners agreed on 16 key family and community practices to improve child health and nutrition. (See page 7.) They divided these into four areas, which cut across the different interventions:

- Physical growth and mental health
- Disease prevention
- Appropriate home care
- Seeking care

⁷ Jones et al. 2003.

KEY FAMILY PRACTICES ADOPTED BY WHO AND UNICEF

For physical growth and mental development

- Breastfeed infants exclusively for six months. (Mothers found to be HIV positive require counseling.)
- 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 diets 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 the full course of immunizations (BCG, DPT, OPV, and measles) before their first birthdays.
- Dispose of feces, including children's feces, safely; 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 one antenatal visit 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 post partum and lactation period.

Source: Winch 2001 (citing list presented at the International Workshop on Improving Children's Health and Nutrition in Communities, Durban, June 2000).

The CORE Group of NGOs has proposed a framework for "Community IMCI" (or C-IMCI) based on a slight rearrangement of this same list, and

recommends developing "packages of behaviors" that are client-centered and take into account the *places* they are performed.⁸ For example, these clusters might

⁸ Winch et al. 2001.

THE EMPHASIS BEHAVIORS

Reproductive Health Practices Women of reproductive age need to practice family planning and seek antenatal care when they are pregnant.

- For all women of reproductive age, delay the first pregnancy, practice birth spacing, and limit family size.
- For all pregnant women, seek antenatal care at least two times during the pregnancy.
- For all pregnant women, take iron tablets.

Infant and Child Feeding Practices Mothers need to give age-appropriate foods and fluids.

- Breastfeed exclusively for about six months.
- From about 6 months, provide appropriate complementary feeding and continue breastfeeding until 24 months.

Immunization Practices Infants need to receive a full course of vaccinations; women of childbearing age need to receive an appropriate course of tetanus vaccinations.

- Take infant for measles immunization as soon as possible after the age of 9 months.
- Take infant for immunization even when he or she is sick. Allow sick infant to be immunized during visit for curative care.
- For pregnant women and women of childbearing age, seek tetanus toxoid vaccine at every opportunity.

Home Health Practices Caretakers need to implement appropriate behaviors to prevent childhood illnesses and to treat them when they do occur.

PREVENTION

- Use and maintain insecticide-treated bednets.
- Wash hands with soap at appropriate times.
- For all infants and children, consume enough vitamin A.
- For all families, use iodized salt.

TREATMENT

- Continue feeding and increase fluids during illness; increase feeding immediately after illness.
- Mix and administer ORS, or appropriate home-available fluids, correctly.
- Administer treatment and medications according to instruction (amount and duration).

Care-Seeking Practices Caretakers need to recognize a sick infant or child and need to know when to take the infant or child to a health worker or facility.

- Seek appropriate care when infant or child is recognized as being sick (i.e., looks unwell, not playing, not eating or drinking, lethargic or change in consciousness, vomiting everything, high fever, fast or difficult breathing).

Source: Murray 1997.

include:

- Periodic preventive behaviors (such as vaccination, vitamin A, treatment of bednets)
- Treatment-seeking and care of the sick child
- Feeding, food preparation, and water use
- Safe environment

The BASICS Project developed a similar list of Emphasis Behaviors for promotion of health in communities.⁹ (See page 8.) The behaviors are based on the idea of a Pathway to Survival that requires actions inside and outside of the home, and includes both prevention and treatment practices. These are also divided into categories:

- Reproductive health practices
- Infant and child feeding practices
- Immunization practices
- Home health practices
- Care-seeking practices

The lists are very similar.¹⁰ They guide program managers in selecting behaviors that have a demonstrated relationship with morbidity and mortality and will have an impact on multiple disease areas. The problem of how to select and combine them in a programmatic context remains, however, and is reflected in the different ways people have grouped them. The problem becomes even knottier as the basic behaviors (like “provide appropriate complementary feeding” and “seek care when child is recognized as being sick”) are translated into precise, do-able actions appropriate to caretaker beliefs and environments. The total number of behaviors can quickly expand into the hundreds.

The *structure* of programs on the ground usually leads to an initial grouping of behaviors. One

intervention may also be a logical entry point to another. For example, immunization may be used as a platform for drawing families into the system and promoting other practices. Antenatal services may or may not serve as an effective “push” towards postpartum care and the first vaccination. Child health weeks and the offer of vitamin A capsules can be a focal point for promoting acceptance of other services such as growth monitoring and deworming. Catch-up measles campaigns are now playing the “piggybacking” role that polio did earlier—bednets or vouchers may be distributed at those events. Behavior and communication strategies must obviously be carefully tailored to program *structures*.

At the community level, strategies regarding careseeking and treatment behaviors for multiple illnesses are rarely well integrated. The BASICS and CHANGE Projects have been working on the cross-cutting concept of “acting without delay” in the presence of danger signs. Primary signs are described in appropriate local terms and translated into “mother reminder materials.”¹¹ The effectiveness of this approach has not yet been evaluated. At the provider level, treatment is usually fragmented, despite the IMCI ideal. A community health volunteer may have drugs for malaria, while pneumonia treatment may be available only at the government health service. A few countries are training community workers to recognize and treat multiple illnesses. Given the preferences of communities for different private providers however, the task of understanding how parents and providers interact—and how these interactions can be improved—is daunting. Programs are just beginning to address the popularity of private (including unlicensed)

⁹ Murray 1997.

¹⁰ Both of these leave out essential newborn care practices. Note that both lists are several years old and should not be used as definitive guidelines for programs. In particular, neither list mentions intermittent preventive therapy (IPT) for pregnant women in malaria endemic areas.

¹¹ Favin et al. 2004.

providers and the impact of *their* practices on child health.

The *phasing* or rolling out of behavioral strategies and also communication *messages* over a given period of time is another challenge. In Nepal, the vitamin A program built the capacities and credibility of community volunteers into a respected cadre. The semi-annual mass mobilizations gave them high visibility. When these volunteers were later trained to assess and treat children for acute respiratory infections, they had already developed the confidence necessary to perform this more complex task, and had also earned the trust of parents. In a Madagascar program, families are introduced to the importance of multiple health actions at once, partly through the use of integrated age-specific materials. Immunization serves as the entry point; parents receive health cards that introduce them to other essential actions and help them track their performance. An extensive community mobilization program motivates sustained attention to the “essential actions” by families as well as providers.

There are no right answers to these implementation questions. Every program must be selective and focused according to morbidity patterns, health system issues, and different community realities. At the same time, the most important principle, as always, is to track what is working and what the gaps are, and continually adjust as these become known.

THE SYSTEMS CHALLENGE— BEHAVIOR CHANGE AT MULTIPLE LEVELS

The next sections of this paper discuss the six basic child survival interventions in separate chapters. While a “vertical” discussion can be limiting, it helps highlight the unique characters of these interventions. Each has benefited from different levels of attention and funding over time and confronted different

challenges in terms of policies, protocols, and product development. Each relies to a different degree on the availability of drugs or other supplies, and imposes different requirements on families and providers.

Understanding the context and character of an intervention helps avoid a merely formulaic approach to behavior strategies. In particular, the importance of behavior change *at different levels* of the health system varies substantially for each intervention.

For example, *advocacy among policymakers*, as well as *advocacy at the community level*, is critical to the success of any newborn intervention. *Selection of feasible behaviors* for families and communities is also crucial. In contrast, a focus on improving *provider behaviors* may be the single most important contribution communication programs can make toward reducing the problem of *immunization dropouts*. Control of diarrheal disease, acute respiratory infections, and treatment of childhood malaria all involve important *careseeking* elements, and are therefore in many ways “joined at the hip” (all require symptom recognition, referral, and rational drug use). Nutrition is really a collection of interventions; but nutrition *per se* is usually a low priority in Ministries of Health. Advocacy for funds, as well as adoption of *up-to-date policies and protocols*, is usually fundamental to addressing the myriad challenges connected with family, community, and provider practices.

The typical communication expert in a Ministry of Health, or the behavioral and social change expert in an NGO, will always be expected to create demand for services and mobilize communities. However, perhaps the greatest *communication task* this person and his or her team may confront is to share the results of behavioral research effectively with stakeholders so that key behaviors—of crucial audiences and actors—can be considered systematically and in terms of their actual priorities.

2 Newborn Health



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Newborn health has only recently been recognized as a priority intervention by the international public health community. Programs will evolve rapidly as the evidence base for community approaches grows. Planners must stay current with lessons learned from behavioral trials and pilot projects. Five, or even two years from now, approaches may be far different from today.

Why is newborn health a new concern? Certainly not because the problem is new. Mortality in the first 28 days of life, known as the neonatal period, accounts for an average of about 37 percent of all child deaths in

developing countries.¹ At least two-thirds of all infant deaths occur during the first week of life and about two-thirds of those within just 24 hours of birth. Stillborn babies increase this toll of early deaths by an estimated four million every year.²

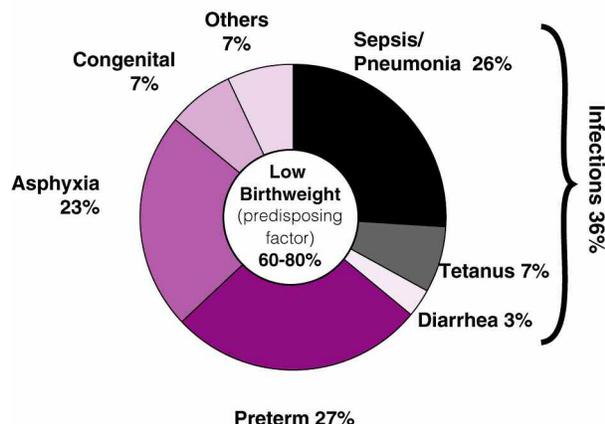
THE INVISIBLE CHILD

Until recently, however, the newborn has been virtually invisible. One reason is simply that this brief moment in the life cycle slipped between the cracks of both child survival and maternal health programs. Safe

¹ Bryce et al. 2005

² Lawn et al. 2005

Causes of Neonatal Mortality*



* Estimated distribution of direct causes of 4 million neonatal deaths for the year 2000.

Source: Adapted from Lawn et al. 2005

motherhood interventions may end with labor and delivery. When IMCI was introduced, official protocols began with the 29th day of life.³ Lacking its own intervention, the newborn did not even appear on public health agendas. The 1990 Summit on the World's Children, for example, made no mention of neonatal health among its many goals.

This gap is also a reflection of the importance and complexity of *data* in planning. Most newborn deaths occur in the home and are not recorded. Even the World Health Organization grouped newborn deaths under the catch-all category of “other” in analyses as recent as 2000. An absence of programs has meant an absence of agreed on indicators for data collection. There has been little to report, less to review, and no one assigned to review it.

DEMONSTRATION OF RESULTS IN COMMUNITY-BASED NEWBORN CARE

A pilot study in India in the mid 1990s demonstrated that home-based newborn care and visits by community providers can save lives even in resource-poor settings. The now famous work was carried out by SEARCH/India in Gadchiroli district, India, where neonatal mortality was 52 per 1,000 live births at baseline and nearly 42 percent of newborns had low birth weight.

Care in the Home Female village health workers (VHWs) with five to 10 years of schooling learned to deliver a home-based newborn care package of services. They were also trained to give antibiotics (oral and by injection) for infections and to use a simple ventilation device to help babies who could not breathe. The VHWs visited each newborn in their community eight times during the first month of life.

Results By the third year, there was a 62 percent reduction in neonatal mortality compared to control villages. The case fatality for deaths due to infection declined from 16.6 to 2.8 percent. The study estimated that for every 18 newborns cared for, one death could be averted. The program cost approximately US \$5.3 per neonate. The study demonstrated to the public health community that home-based newborn care is feasible and effective.

Others are now working to replicate this study and to test less intensive models.

Source: Bang 1999.

³ Many countries are now extending IMCI to one week or to the day of birth.

THE “IMPOSSIBLE” INTERVENTION

The newborn has remained invisible partly due to medical fatalism about causes and possible solutions to this mortality in the context of poor health structures. Early deaths are caused by birth asphyxia and injuries, infection, congenital anomalies, as well as complications due to prematurity and low birth weight. The prevailing view has long been that saving these babies would require costly approaches and sophisticated facilities. Affecting underlying causes seems even more expensive and difficult. From 60 to 80 percent of deaths occur among babies who are low birth weight⁴—a condition linked to poverty, maternal malnutrition, malaria (in endemic areas), and a host of cultural factors. Other determinants include early and late child bearing, births that are too close together, and lack of maternal decision-making and status in the family.

We now know, however, that effective newborn interventions can be delivered even in resource-poor settings and where births take place outside of facilities. A large percentage of neonatal deaths can be averted through low-cost, low-technology measures⁵ (see page 12).

It has also become evident that large improvements in overall child survival rates won't be possible *without* attention to the newborn. Particularly in countries that have done well in reducing other child deaths, the high proportion of mortality in the first weeks is now difficult to ignore. Major donors (such as the Bill and Melinda Gates Foundation) have committed resources and drawn attention to the newborn, and USAID now includes newborn health in several global projects.

BEHAVIOR CHANGE AND COMMUNICATION IN THE CONTEXT OF A NEW PROGRAM

Any new program area faces special challenges. For newborn health, these are:

- Advocacy (at the policy, health system, and community levels)
- Joint decision-making (between at least two different arms of the health system) regarding programs and protocols
- Consensus on priority behaviors for communities

Behavior change and communication efforts can and should contribute in all of these areas. The most obvious is the third. Pages 15 and 16 include lists of key newborn health practices for the family, as proposed by two major newborn health projects (Saving Newborn Lives and BASICS II). One list mentions 30 family behaviors. The other describes 19 routine behaviors and 14 special behaviors. Both lists highlight the fact that newborn survival is part of a continuum of practices beginning in pregnancy. Care takes place over several phases:

- Preventive care during pregnancy
- Planning for delivery
- Care during childbirth
- Immediate care of the newborn
- Continued postnatal care

The behaviors cut across several existing interventions, in particular reproductive health and safe motherhood, but also malaria and acute respiratory infections. One question for behavior change programs is how, and to what extent, additional newborn emphasis can be integrated into ongoing interventions. The initial and most challenging task, however, is to

⁴ Lawn et al. 2005.

⁵ Darmstadt et al. 2005.

select behaviors that are both *feasible* and will have an *impact on mortality*. In every program, the list must be small and carefully targeted.

CRITERIA FOR SELECTING PRIORITY BEHAVIORS

Access to Skilled Birth Attendants

Understanding *access to and use of services* is pivotal to selecting family behaviors. The presence of a skilled birth attendant⁶ is critical to the survival of both mother and baby. Many people believe access to this service should be promoted as an essential human right. It should be a primary focus for advocacy with policymakers. Only an attendant specifically trained in newborn care can manage some problems during the first 24 hours when 40 percent of neonatal mortality occurs. In particular, handling birth asphyxia (which is responsible for around 23 percent of mortality) requires skills and simple equipment.

However, the reality is two-thirds of mothers in the developing world deliver at home and almost half are attended only by family, neighbors, or unskilled attendants.⁷ Some deliver alone. In Bangladesh, for example, up to 80 percent of urban and virtually all rural births take place at home. Furthermore, access to this service is tied more closely to economic status than any other health intervention.⁸

For cultural and other reasons, some women do not seek out a skilled attendant and/or a facility for the

birth even when these are available. Care is often substandard and mothers may be treated poorly.⁹ In some areas, health facilities lack basic supplies and conditions are not hygienic. Safe motherhood programs may focus on these issues.

Communication programs must decide whether or not they will actively promote the behavior “seek a skilled attendant for the birth.” Strategies may also vary by region or community.¹⁰ The list of key practices on page 15 includes this behavior; the list on page 16 (which was originally created for Senegal) does not. In the second list, virtually all behaviors are initiated by the mother and carried out by her or the family.

Feasibility is the key criterion for this behavior. The relative importance, and the “who and what” of many of the other behaviors, hinge on whether this one has been included in the strategy.

Three Contexts for Selecting Behaviors

WHO recommends a phased approach to newborn programs based on two major factors: availability of skilled care and magnitude of newborn mortality. These criteria help determine the selection of key behaviors in a newborn program. WHO identifies three scenarios. Each includes an immediate strategy and a strategy aimed at the longer term task of improving services.¹¹

⁶ The term skilled birth attendant refers to those with midwifery skills (e.g., doctors, midwives, and nurses) who have been trained to proficiency in the skills necessary to manage normal deliveries and diagnose, manage, or refer complicated cases. (MNH 2001)

⁷ Knippenberg et al. 2005.

⁸ USAID 2003 (a).

⁹ In one study of the competence of skilled birth attendants in four developing countries, on average, providers answered 55.8% of pertinent knowledge questions correctly and performed 48.2% of skills steps correctly. (Harvey et al. 2004)

¹⁰ This issue can be very political. Donors may also have to be convinced that most gains in the short term will be made by focusing on care of the normal newborn and that both a short- and long-term strategy are necessary.

¹¹ WHO/SEA 2002. (There is debate about how long it may take countries to provide their populations with access to birth attendance. In Sri Lanka the process from commitment to large-scale accessibility took about 75 years.)

Scenario One Neonatal mortality rate is more than 50 per 1,000 live births. Deliveries take place in the home (with a relative or a traditional attendant). Emphasis behaviors include:

- Tetanus toxoid vaccinations
- Use of clean delivery kits
- Exclusive and immediate breastfeeding
- Improved family practices for the normal newborn
- In endemic areas, intermittent preventive therapy (IPT) for malaria¹²

The complementary *long-term strategy* is to begin planning for and investing in recruitment and training of skilled birth attendants. (For a communication program, this is an *advocacy* focus.)

Scenario Two Neonatal mortality is 25 to 50 per 1,000 live births. Some deliveries are attended by skilled birth attendants. In addition to the basic interventions in scenario one, programs should emphasize selected antenatal services as well as some practices related to the “non-normal” newborn. Additional practices include:

- Consumption of iron folate
- Home-based care of low birth weight infants (such as Kangaroo method)
- Approaches to address asphyxia and infections

Complementary *long-term strategies* should include training of skilled attendants and also (when NMR is under 30/1000) strengthening of facilities.

Scenario Three Neonatal mortality is under 25 per 1,000 live births. Short- and medium-term strategies should emphasize skilled attendance at birth and promote facility-based deliveries.

ESSENTIAL ELEMENTS OF NEWBORN CARE—SAVING NEWBORN LIVES

Care During Pregnancy

- Maternal immunization for tetanus toxoid
- Nutritional support (including iron and folate supplementation)
- Birth planning including transportation
- Counseling on breastfeeding
- Recognition of danger signs and treatment or referral as needed
- Where appropriate—
 - Presumptive malaria treatment
 - Syphilis screening and treatment
 - Voluntary counseling and testing for HIV

Care During Childbirth

- Skilled birth attendance at delivery
- Clean delivery: hand-washing, clean space, clean cord care
- Recognition of danger signs (for mother and baby) and treatment or referral as needed

Immediate Care for the Baby

- Immediate and exclusive breastfeeding
- Keeping baby warm and dry
- Keeping mother and baby together
- Prophylactic eye care where appropriate
- Treatment for asphyxia and resuscitation

Continued & Routine Visits with a Trained Health Care Provider

- Early postnatal visit
- Continued exclusive breastfeeding, cord care, and thermal control
- Recognition of danger signs (e.g., fever) for both mother and baby, with treatment or referral as needed
- Immunization

Source: *Saving Newborn Lives 2003*. Reprinted with permission.

¹² This source addressed behaviors in the SEA region so did not discuss IPT; WHO recommends IPT for malaria in endemic areas.

ESSENTIAL ELEMENTS OF NEWBORN CARE—BASICS II

BEFORE BIRTH

Preventive measures during pregnancy

- The pregnant woman receives appropriate doses tetanus toxoid vaccine
- The pregnant woman finds a *relais* or other health worker for pregnancy and until 2 months after the birth
- The pregnant woman identifies a *relais* or other health agent to get medicine to protect her from malaria
- The mother sleeps under an insecticide-treated bednet during pregnancy and after the birth with the baby to protect them from malaria
- The mother/family uses iodized salt when preparing family meals

Plan for Delivery: Place/Materials

- During the pregnancy, the mother/family identifies with the health worker the place of delivery
- The pregnant woman with selected problems identified by the health worker plans for her delivery in a suitable health center or appropriate hospital
- The mother/family prepares the material for the delivery:
 - New blade kept in its cover in a clean covered container
 - Clean thread kept in the above clean covered container
 - At least 5 clean cloths, washed and dried in the sun

Plan for delivery: Emergencies/Transport

- The mother/family plan for the resources needed in case of an emergency and transport and identifies the referral center and the method of transport

AFTER BIRTH

Essential care of the newborn

- At birth and after birth, the mother/family checks that the temperature of the baby is maintained:
 - Dry the baby with a clean cloth immediately after the delivery
 - Wrap the baby, including the head, with clean and dry cloths
 - Put the baby next to the mother
 - Delay the first bath of the baby for 6 hours
 - Check that the baby is effectively maintaining temperature by periodically making sure the stomach, hands and feet are a normal temperature
- The mother begins breastfeeding her newborn in the first half hour after birth without giving other liquid
 - The mother breastfeeds the baby exclusively, on demand, night and day, at least 10 times per day
 - The mother/family keeps the cord clean and dry without applying any clay, ash or other product until it has dried up and fallen off
 - The mother/family gives special care to the low birth weight baby, such as keeping them in skin-to-skin contact if necessary, and breastfeeding even more frequently--at least 12 times a day.

Danger signs in the newborn

- The mother/family bring the baby to the health facility as soon as one of these danger signs appears:
 - The baby feeds little or not at all
 - Baby is inactive or lethargic
 - Breathing is rapid, accompanied by chest in-drawing or gasping/grunting
 - The body is especially cold or hot
 - The base of the umbilical cord is red, inflamed, is leaking pus or has a bad odor
 - Persistent vomiting/abdominal distention
 - Convulsions

These scenarios can help determine how to target the most important behavioral clusters at the household level. They also help sort out what advocacy efforts should focus on in terms of both short- and long-term goals. Finally they provide guidance on to what degree (and how) newborn programs should put energy into supporting other ongoing programs in addition to promoting “new” family and community behaviors.

ADVOCACY AND PROGRAM DEVELOPMENT

National-level Policies and Programs

Behavior change and communication interventions have an important role to play in highlighting what practices are both *important and feasible* for families. Communication efforts can also play a significant role in addressing the first two goals mentioned on page 13: *advocacy* and promotion of consensus to move processes forward *within the health system*.

Efforts should focus on specific *outcomes*. These include a national newborn policy, a country strategy, a registry of births and deaths, and increased public awareness of the newborn. Certain *processes* are also key: collaboration across the health bureaucracy, mainstreaming within the medical profession, better use of data, and development of partnerships. WHO has outlined ten basic steps for establishing newborn health as a country-level priority (see box at right).

TEN STEPS FOR MAINSTREAMING NEWBORN HEALTH IN THE SYSTEM

WHO has made these recommendations for making newborn health a viable program area at the country level:

- 1. Specify specific goals** for reduction in neonatal mortality rates.
- 2. Write and adopt a national policy** supporting a countrywide neonatal health strategy.
- 3. Conduct advocacy** among multiple partners at the highest levels to mobilize resources.
- 4. Adopt a country strategy** providing options for programs in districts with different health infrastructures and mortality situations.
- 5. Mainstream neonatal health** through coordination between maternal and child survival and other health areas, as well as cooperation with other sectors.
- 6. Develop partnerships** among governments, NGOs, professional bodies, academia, and developmental partners at regional and country levels.
- 7. Establish universal registration** of births and deaths. Reach consensus on key indicators for neonatal health. (Use these data for supportive supervision within the health system.)
- 8. Include key indicators** within national surveys and national health management information systems.
- 9. Strengthen neonatal care capacity** within both maternal and child health programs through systematic training, skills development, and logistics.
- 10. Conduct operations research** to establish an evidence base for innovative programs.

Source: WHO 2002.

Developing Commitment to New Policies and Expenditures

In most countries, mortality data provide the strongest case for a commitment to the newborn. The ALIVE¹³ computer modeling process is one tool that can be useful in bringing stakeholders together at the national level to examine the country-specific evidence base, agree on priorities, and also create “spin-off” materials for advocacy.

Saving Newborn Lives (SNL) often assists with a country-level situational analysis that brings stakeholders together and jumpstarts policy development. In Nepal, SNL helped bring together both safe motherhood and child survival experts from the Ministry of Health, professionals from tertiary health facilities, NGOs, as well as respected retired health experts. These experts decided to produce a series of scientific issue papers laying out the evidence base for Nepal, resulting in strong ownership of newborn care by the Working Group. They drafted a national policy that introduces newborn care within the context of traditional health practices.

Programs and Protocols

For ministries, one of the most difficult tasks is to integrate the newborn into two different arms of the health bureaucracy—safe motherhood and child health. Agreement has to be reached on who will take the lead in developing protocols, quality of care standards, and training programs. International donors are also stymied by such confusion (or competition) within their institutions. Bringing together the right individuals to talk under the right circumstances smooths bureaucratic coordination. An important focal process for many countries is extension of IMCI protocols to include the newborn. A number of

countries now address the sick newborn seven days and older and a few from the second day of life. Indonesia and India now have protocols for the newborn beginning with birth. Advocacy is also important to garner attention for the newborn within other interventions (such as ARI, for example).

Mainstreaming Within the Medical System

Over the long term, professional associations and medical institutions are responsible for developing new curricula and establishing credentialing systems. Their action is necessary to make newborn health official within the system. They need to be involved from the start and feel ownership of new initiatives. In India, the National Neonatology Forum (NNF), a professional association with 18 state chapters, was instrumental in moving policies forward. (The association accredits newborn units and produces technical guidelines.) In 2003 they were successful in getting the government to launch its first National Newborn Week.

Better Use of Data

Three or four of the 10 WHO recommendations are about collection and use of data about the newborn. A national registry of births and deaths is critical. WHO also recommends not expressing neonatal mortality as a percent of child mortality (which blurs both the rate and changes in the rate), but calculating the actual *newborn mortality rate* (NMR) and then setting goals to reduce this rate. Neonatal indicators must also be established and included in surveys.

The Public and the Press

The newborn needs the support of a strong national advocacy effort. Communication programs can create awareness at the national level through workshops and

¹³ ALIVE is one of a family of computer-based advocacy processes. Others include REDUCE (for maternal mortality) and PROFILES (for various nutrition interventions). These tools were developed by the Academy for Educational Development with funding from multiple donors.

briefing materials for the press, article and story placement, speakers' bureaus, and broad-based public awareness campaigns using the mass media and other approaches. A logical home for the newborn is within the White Ribbon Alliance. Building on existing safe motherhood networks is logical for many reasons. At this level, simple messages to notice the invisible newborn and linking newborn survival to specific interventions (rather than detailed behaviors) are most important. Many people also feel that newborn health must become a grassroots "rights-based" movement highlighting fundamental gender and equity issues such as maternal decision-making and access to services.

Advocacy at the Community Level

The newborn has also been invisible at the community level. In many environments, the high newborn mortality makes fatalism akin to realism. Changing community norms about the newborn starts with awareness raising and the belief that lives *can* be saved. The silence surrounding these deaths is often linked to beliefs about supernatural causes or God's will. In many cultures the newborn is not considered a person for the first days or weeks of its life. Many newborn deaths are not counted. Dealing with these issues within the community requires sensitivity and the right advocates. NGOs with experience in participatory approaches can play strong roles in increasing awareness and collective action among local leaders, within health facilities, women's groups, and other networks.

Community advocacy also has to focus on specific actions that will make a difference. These actions must be *feasible*. This may or may not include promotion of skilled birth attendance, for example. *Collective* action is necessary to save newborns. In case of emergency, families need to have a plan to transport mother and

baby and to cover referral-related costs. Safe motherhood programs promote community cooperation to set up joint funds and find vehicles that can be used when mothers are in trouble. Community insurance schemes also help families cover the costs of such emergencies. Recognition that newborn emergencies also deserve such support can be integrated into these programs.

WHO has recommended that one of the first steps is to make registration of deaths compulsory and require village chiefs to sign death certificates. This will make leaders aware of the deaths, encourage responsibility, and establish a basis for taking action.

ASSESSING BEHAVIORS THAT MAKE A DIFFERENCE

So far we have talked about selecting behaviors that are *feasible*. The other half of the challenge is to emphasize what will *make a difference*. Managers (and funders) of "new programs" may be inclined to think they will only make a difference if they do something *new*, whereas the greatest gains may actually come from integrating with existing programs and supporting or supplementing them.

An important first strategy is to look at the gaps in what is known to reduce mortality and if necessary, do these things better.¹⁴ In high mortality areas this includes the first three bullets on page 15 under Scenario One: tetanus toxoid vaccination, exclusive breastfeeding, and—in endemic areas—malaria prevention.

Tetanus Toxoid Vaccination

Over the last two decades, maternal vaccination against tetanus toxoid (TT) has made the single largest contribution to improvements in neonatal survival.¹⁵

¹⁴ WHO 2002.

¹⁵ WHO 2002.

MOBILIZING DEMAND FOR TETANUS TOXOID IN PAKISTAN

In Pakistan, 80 percent of births take place at home and without skilled attendance. In 1999, only about half of women of childbearing age were immunized against tetanus. In that year, 22,000 newborns died from tetanus.

Reducing Barriers. The government initially provided TT vaccination through antenatal services. However, it was clear this approach was not meeting the needs of women in that largely traditional culture. The Ministry of Health, UNICEF, WHO, JICA, and SNL developed a campaign approach that involved home visits by Lady Health Workers (LHW) who were more acceptable to women than male vaccinators. The program still faced a number of barriers. One of the primary ones was suspicions about a connection with birth control—particularly because the campaign targeted unmarried women and married women who were not pregnant, as well as those who were.

Multiple Audiences. A multi-level campaign strategy focused on creating national awareness and acceptance for vaccination at the community level. Focal audiences were fathers and husbands, mothers-in-law, community and religious leaders, and teachers. Religious and community leaders received special information leaflets. Materials were distributed at girls' schools. Just prior to the campaign in each district, local mosques promoted acceptance of the vaccinators. Vaccinators were motivated with a short docu-drama, which was also aired on national television.

Results. More than 80 percent of the five million women in the target group received three doses of vaccine.

Sources: MNH 2003; Fikree 2002.

The higher the mortality, the larger the role tetanus plays in the number of deaths.¹⁶ Increasing or maintaining TT coverage is always a key issue for newborn survival. Many countries provide vaccination as part of the standard antenatal service package.¹⁷ However, even where a high percentage of women visit antenatal clinics (ANC) several times during pregnancy, TT coverage may be less than 50 percent. The gap may be due to supply problems or service issues. It is also important to look at *who* is covered and who is not. The most vulnerable populations are least likely to use ANC services.¹⁸ Newborn programs should analyze both supply and demand issues carefully.

Other approaches to TT delivery, including campaigns, are possible. In Pakistan, investigators found that women were not attending ANCs and a vertical approach was essential (see box at left). Another approach is vaccination in primary schools. Vaccines must be given early enough to catch girls before they drop out, and should be given to boys as well (in order not to discriminate but also to avoid suspicions about a family planning connection).

Immediate and Exclusive Breastfeeding

Over the last 20 years nutrition and child survival programs have brought substantial improvements in early initiation of breastfeeding. If this behavior remains a problem, newborn programs should collaborate with existing programs that include breastfeeding messages and help assess their effectiveness. (Breastfeeding is also part of a

¹⁶ USAID 2003 (b). Citing R Steinglass et al. 1993.

¹⁷ Five doses are necessary over a lifetime, three of which should be part of childhood immunizations. UNICEF, WHO, and UNFPA recommend three doses to women of childbearing age. Most countries provide at least two during pregnancy.

¹⁸ Abou-Zahr 2003.

ADAPTING TO LACK OF ACCESS

Use of antenatal services is high in many parts of the world. However, high access may obscure equity issues. An analysis of DHS surveys covering the late 1990s found that, among all developing countries with data, one-third of women in rural areas and two-thirds of women with a primary school education or less report no antenatal care.

Family members (mothers-in-law and husbands) are very influential in determining whether a woman seeks antenatal care and they should be the targets of interventions to improve attendance. At the same time, programs should keep in mind that high overall ANC use may obscure the need for special strategies to reach those women who are most vulnerable.

When ANC Visits Aren't the Answer

Newborn programs should always promote feasible behaviors. In Bangladesh, the newborn program decided not to put effort into promoting ANC visits because 52 percent of pregnant women nationwide were not using the services and supplies were often not available at the clinics. It was decided that little harm would come from leaving this behavior out of the communication strategy (particularly because tetanus toxoid—a critical service—is delivered through a vertical program in Bangladesh).

When Skilled Attendants Aren't the Answer

Promotion of skilled attendance at birth was also considered a lower priority because of feasibility issues. Few trained providers were available, and even where they were, families indicated a strong preference for experienced providers, whether or not they had been trained. The program is therefore conducting intensive communication activities for the multiple *community members* who influence home practices.

Sources: *Abou-Zahr 2003*; *SNL 2003*.

continuum of essential home practices and is discussed further on page 24.)

Malaria Prevention

Malaria contributes to maternal anemia and related deaths, to still births, low birth weight, and associated newborn risks. Preventive behaviors include at least two doses of intermittent preventive therapy (IPT) during pregnancy and sleeping under an ITN (during pregnancy and afterwards with the infant). These are both challenging interventions. In malaria endemic countries, IPT is likely to be part of antenatal services.¹⁹ National malaria control programs are working on making ITNs affordable and accessible through different strategies. There are almost always major gaps in malaria prevention programs and newborn programs may decide to contribute to solving these. Malaria prevention behaviors should *always* be emphasized as part of the newborn package in endemic countries.

INTEGRATING WITH SAFE MOTHERHOOD

ANC services are part of safe motherhood programs and attendance is high in some countries (although not in all—see box at left). An important issue for newborn programs is that clinics are likely to focus on services and not counseling. WHO has determined that women who attend ANCs often receive unnecessary services and are asked to make more visits than necessary.²⁰ Both of these factors reduce the time available for counseling. The important message for women is to come *early* rather than *many times*. Sometimes women who do come early in pregnancy are not counseled on birth preparedness but told to return later—and then may miss discussion of birth preparedness altogether.²¹

¹⁹ The number of doses varies according to the drug. Antimicrobial resistance and changing policies contribute to making this a challenging behavior.

²⁰ MNH 2001.

²¹ Matinga 2000.

WHAT IS BIRTH PREPARATION?

Birth preparation is a key behavior in both safe motherhood and newborn programs.

“Preparation” may mean many things. The classic messages are to select a place of delivery, a skilled attendant, and a referral facility in case of emergency. The family also needs to plan for transportation, which may mean saving money and receiving support from the community to identify a vehicle. In fact these behaviors will vary greatly from program to program.

Preparing in Nepal Eleven percent of Nepali women deliver entirely by themselves. About 89 percent of deliveries are at home and 78 percent are without skilled attendance. A major focus of the program in this country is therefore to plan for a hygienic delivery. Safe delivery kits are produced in Nepal but in a recent survey 80 percent of women were not familiar with them and only 8 percent had used one. SNL is planning a social marketing campaign to promote use of the delivery kits.

Preparing in Palestine In some countries planning for an emergency is considered bad luck and this is a major barrier. In the West Bank, however, mothers are encouraged to view emergencies as the norm. Women often deliver enroute to a facility because of road blocks and border delays. Positive deviance research uncovered the simple fact that women who do some advance planning are better able to protect their infants. Mothers are encouraged to stay with well-located friends or relatives as the birth approaches in order to shorten their distance to a facility. The program has also created materials to help women discuss with their families what to do in case of an emergency birth.

Sources: WHO 2002; Orsin 2002; Anne Roberts, personal conversation.

WHO now recommends that birth preparedness be discussed in *all* ANC visits. Newborn programs can help advocate for these crucial changes.

Where ANC services are promoted as part of the newborn program, counseling about essential newborn care practices should be incorporated into the ANC package along with information about birth preparation. Safe motherhood already provides information and encouragement about breastfeeding, a safe and hygienic delivery (including cord care), and planning for emergencies. Discussion of emergencies is an opportunity to emphasize that the *newborn* also deserves emergency attention and transportation if necessary. A simple, key behavior change is *attention* to the newborn and *awareness* of its status from the moment of delivery.

Counseling during antenatal care should focus on whoever comes *with* the mother, since these messages are primarily for those who will be helping her at the birth (see box at left).

Essential practices include drying and wrapping the baby, delaying the first bath, and keeping the baby with the mother (see next section). Simply spending time talking about the newborn (preferably with a family member) during counseling is a first step in changing the “invisible infant” norm.

ANC counseling can promote the first postpartum visit. This practice is also not a norm in most communities. Most mothers appreciate the need for vaccinations and the postpartum visit can be linked to this benefit.

Basic “normal care” messages are critical. However, programs need to be realistic and cautious about discussing *danger signs* during the ANC visit (see page 25). The total list of practices is always long. The mother and the provider will need appropriate memory aids for any that are promoted. The standard mother’s card should also be revised to include these key behaviors.

THE BIRTH EVENT AND ESSENTIAL CARE

Who is Present at the Birth—Who Makes Decisions?

The immediate postpartum period is from the birth until two to three hours after delivery of the placenta. *Essential* newborn care practices are aimed at this small window and are deceptively simple. Amenability of existing practices to change will vary greatly in different communities. The first key factors are *who* is present at the birth and what *decisions* they are expected to make. This may vary within countries and districts and sub-regions, and communication activities must be tailored.

Even if the mother delivers alone (as in some parts of Nepal) a range of people may be responsible for decisions at different points in the birth process and afterwards. Their responsibilities are usually influenced by power relationships in the family and also strongly held traditions about ritual purity/pollution. The place of birth (it may be outside the home in a shed, for example) is often influenced by such beliefs, as is the role of a traditional birth attendant. Those who make decisions may be different for a first birth (when the mother may return to her parents' home) and subsequent births.

Formative research is essential to understand who these people are, what their responsibilities usually are and how they fulfill them, and what the barriers and enablers are that can be addressed to support improved practices.²²

Often *different* female relatives make decisions about when the baby will be cleaned, where it will be put, and when it will be breastfed. The TBA or the mother may cut the cord, bathe the baby, and also

clean up. The mother-in-law may make decisions about danger signs and what actions to take and why. The husband may decide whether and how the mother and infant are actually transported in an emergency. In general the goal of an intervention is not to change these *roles* but to understand them and decide how to influence specific actions. For example, while some programs have abandoned training of TBAs *per se* because roles are highly circumscribed, other programs include specific messages for them.

Many newborn communication programs focus primarily on the family—in particular the mother-in-law and the husband—because they are the primary decision-makers.

Notice the Baby

The first behavior is really to *pay attention* to the baby. A newborn is often left lying on the ground until the placenta has been delivered. In some cultures the placenta is considered to have a soul, adding to the importance attached to its delivery. Those present at the birth are generally exclusively focused on the mother. A program in Bangladesh actually recommended assigning one person to be the “newborn attendant,” which is one way to give prominence to the newborn's care.

Keep Baby Warm and Dry

Essential messages at birth are:

- Dry the baby and cover it immediately after delivery
- Wrap the baby, including the head, with clean dry cloths²³

²² Parlato et al. 2004. The manual outlines research questions for the different behavioral clusters and provides a matrix of methodological options for different newborn applications.

²³ SNL recommends skin-to-skin contact as the optimal behavior, even for the normal newborn. After drying the infant, it should be placed in skin-to-skin contact with the mother and both covered with a clean warm blanket.

- Put the baby next to the mother and keep them together
- Delay the baby's first bath at least six hours
- Check periodically to see that the baby is warm (check temperature of stomach, hands, and feet)²⁴

Many cultures are amenable to “keep baby warm” messages. In South Asia, beliefs about hot and cold conditions are also conducive to this advice. In Nepal, even when the mother gives birth alone in a shed, a fire will be made there to support the right conditions. Messages should build on helpful local beliefs. Rubbing the baby immediately as well as wrapping it in a clean cloth are very important to stimulate a non-breathing infant.

Delaying the baby's first bath is important to prevent hypothermia and is the most challenging behavior in many cultures. Some communities attach ritual importance to the first bath or believe the baby should not be breastfed until after the bath. Some believe that an attendant (a TBA for example) has not done her job or is lazy if the baby is not bathed rather quickly. Local expectations about the bath can also negatively influence practices in facilities, even where providers have been taught appropriately. WHO recommends that the bath should be delayed for six hours,²⁵ but programs are setting shorter times according to what may be feasible.

Behavior change strategies may have to focus on negotiation of small but important changes and a progression of such changes over time. *Harm reduction*, rather than elimination of practices, may be the first step—particularly for bathing. The TIPs methodology (Trials of Improved Practices) is a useful research tool

for investigating how changes can be negotiated in any harmful practices.²⁶

Initiate Immediate and Exclusive Breastfeeding

Many programs now have solid and successful experience promoting early initiation of breastfeeding. They have focused on knowledge of benefits to the baby as well as the mother. Colostrum acts as the “first vaccination” and immediate breastfeeding helps the mother deliver the placenta, stop bleeding, and recover more quickly. Benefits to the mother can be particularly convincing at the birth, given the urgent focus on delivery of the placenta and concern over blood loss. Programs have also successfully negotiated changes in ritual practices, in particular reducing prelacteals to small symbolic tastes, and have instead connected the valued rituals to colostrum (for example, equating it with God's gift to the baby).

Keep the Mother and Baby Together/Warm and Dry

The recommended practice of “keeping the mother and baby together” promotes frequent as well as exclusive breastfeeding *both night and day*. Establishing this as a norm also provides a good base for recommending the Kangaroo mother care method if babies are born low birthweight (see page 26). Initial *separation* of mother and baby is common in some communities, however, and is often done to protect the mother in some fashion. Promoting the benefits of immediate breastfeeding *to the mother* can build on this underlying concern, providing a bridge to other behaviors as well.

²⁴ Using touch to determine whether a baby's temperature is normal can be difficult. A baby who is either too warm or too cold can be in danger.

²⁵ WHO et al. 2003.

²⁶ Dicken et al. 1997. (Nachbar 2002 recommends TIPs for five newborn behaviors: delaying the first bath; immediate initiation of breastfeeding and avoidance of prelacteals; skin-to-skin contact; drying and warming the newborn before the placenta is delivered; and clean cord care.)

Proper Cord Care

Proper cord care begins at delivery and includes cutting with a clean blade or knife and tying with clean strings. These practices are included in safe motherhood counseling. Additional practices are to keep the cord clean and dry without applying any clay, ash, cow dung, or other material until it has dried up and fallen off. Harmful practices are common and can lead to sepsis (or tetanus if the mother has not been immunized). Research is essential to uncover what is going on locally and address specific practices.

POSTPARTUM FOLLOW-UP

WHO recommends every mother be visited by (or visit) a skilled provider within six hours of birth, within the first week, and again between four to six weeks.²⁷ Programs must decide what kind of visit, and how many, are feasible. The initial visit is a moment of opportunity to help the mother with feeding problems and for detecting infections. The first visit after a home delivery should include initial BCG and polio vaccinations. Vaccinations may be the chief motivating factor for the family. The postpartum period is also a time of transition when women may be open to new ideas.²⁸ The Lactational Amenorrhea Method of birth spacing (LAM) and other family planning methods can be offered at this time.

Postpartum follow-up is an urgent issue that is often missed. Traditional practices of seclusion and beliefs about the infant's vulnerability to various supernatural causes are barriers. This is another area for good qualitative research, however. Some cultural barriers are changing. A program in Malawi found many rural women starting to make early postnatal

visits and is planning "positive deviance" research to find out what the determinants are for their behaviors.

Some programs promote home visits by community health workers.²⁹ Throughout Indonesia, a trained village midwife is supposed to visit every new mother within one to seven days of delivery. She provides vaccinations to the baby and iron/folic acid and vitamin A to the mother. She also examines the baby and promotes adoption of the Kangaroo approach (see page 26). A program in China found that a majority of mothers welcomed help with problems feeding their infants.

One challenge is the absence of providers at the community level that have experience with newborns. TBAs often have few duties connected with the newborn and may not be interested in a new role (especially one which is not reimbursed). Their status may also restrict them in the community's eyes to certain kinds of duties (considered lower class or unclean). Nevertheless some programs have had success involving TBAs in postpartum and newborn care. Abhay Bang's program in India (see box, page 12) mobilized and trained TBAs to visit within 24 hours of delivery and provide life-saving services—although these women traditionally do not have a role in newborn care.

FAMILY CARE OF THE NON-NORMAL NEWBORN

Special behaviors can protect the low birth weight baby, the baby who has difficulty breathing, and the baby with an infection. WHO suggests these behaviors become a priority once mortality has dropped below 50 per 1000 live births (Scenario Two). It is never helpful

²⁷ WHO et al. 2003.

²⁸ Koblinsky 2004 (draft).

²⁹ Koblinsky 2004 (draft).

LIFE-SAVING MEASURES FOR THE HOME

Over 20 percent of newborn deaths are due to birth asphyxiation. These babies die before they can be referred to a facility, even if one is nearby. Until recently most of these deaths were considered impossible to avoid in resource-poor areas.

Pilots in Multiple Countries A number of pilot programs have demonstrated that simple equipment and simple skills can save many babies. WHO, USAID, PATH, and the SWACH Foundation joined to conduct operations research in India, Indonesia, Bangladesh, and the Islamic Republic of Iran. They trained TBAs and other providers to identify signs of asphyxia and to use a simple, low-cost tube and mask to ventilate newborns. The devices cost under US \$6.

Results A multi-site evaluation of these pilots showed that physical stimulation or mucus suction were enough to revive 31-71 percent of babies who did not cry at the time of birth. Between 34-75 percent of babies who did not cry required ventilation. Mortality from birth asphyxia in the study was only 5.8 per 1000 live births (in contrast to the developing world average of 21 per 1,000 live births). Families were very supportive of the interventions, and the equipment enhanced the prestige of providers.

The study recommends that any birth attendant who assists in more than five deliveries a month should receive training. Pilots such as these hold great promise for many newborns once mothers have access to skilled attendants.

Source: WHO 2002.

to teach danger signs that can only be treated by advanced interventions if referral isn't possible. But contextual factors are also important. For example, where prevalence of low birth weight is high, the small baby may be the norm.

Low Birth Weight Babies

Most babies in the developing world are not weighed at birth. However, families often recognize when a baby is small. The low birth weight baby needs the same protections offered to the normal newborn. It also needs to be breastfed more frequently—at least 12 times a day. Warmth is particularly important for the small baby.

SNL promotes the Kangaroo mother care method for low birth weight babies.³⁰ This includes 24-hour skin-to-skin contact. The baby is held in an upright position under the mother's clothes or a wrap. The mother acts as a sort of incubator, and a baby that might otherwise not survive without care in a facility can be taken care of at home. Kangaroo care is usually well received by mothers. In the West Bank where babies are often born enroute to facilities due to road blocks, the kangaroo method was promoted as a "norm" to prevent hypothermia of babies in transit. But the program found it gave mothers a sense of security as well—an unanticipated benefit.

Asphyxia

Most cases of asphyxia can only be dealt with by a trained provider who has equipment. Unless a skilled attendant is available at the birth, a baby with asphyxiation will die very quickly, certainly before it can be transported to any referral facility (see box at left). However, some babies who do not cry may look dead but will respond to gentle stimulation, such as

³⁰ WHO 2003.

rubbing with warm cloths. This is one reason the “normal” practice of immediately drying the baby—and first of all *noticing* the baby—is so urgent.

Infection

Families have more time to act if there are signs of infection. Infection (including acute respiratory infection — or pneumonia) remains a danger throughout the neonatal period. Danger signs include:

- The baby does not feed well or at all
- The baby is inactive or lethargic
- The baby breathes rapidly (the chest draws in and the baby gasps or grunts)
- The baby’s body is especially cold or hot
- The base of the umbilical cord is red, inflamed, or is leaking pus
- Persistent vomiting
- Convulsions

Some programs decide to teach these danger signs in addition to the essential care behaviors designed to prevent problems in the first place. The key factor in treatment of infections is *access*—to a knowledgeable provider as well as to supplies. Babies with infections need to be treated with appropriate antibiotics. In many communities people believe allopathic medicines are not appropriate for newborns. Such beliefs, as well as deeply held concerns about taking the newborn out of the home and problems of transportation, make treatment challenging. To date, the successful ARI programs have focused on *case-seeking* (by providers who come to the home). However, the assumption that parents will not take a newborn from the home in an emergency may not always be warranted. In Malawi, for example, research showed families were much more willing to come up with a plan for responding to

danger signs (in both the mother and the infant) than to plan for skilled attendance at the birth.³¹

A high proportion of deaths due to acute respiratory infections (ARI) take place in the first weeks of life. There is a particularly important overlap between these interventions. The challenge of reducing the large number of ARI deaths has brought new attention to the neonatal period as well. Several pilot programs are discussed in Chapter 4. ARI interventions face additional policy and advocacy challenges. Advocacy for inclusion of the newborn into IMCI protocols helps assure that young infants benefit from any increased attention to ARI as well.

³¹ SNL/Malawi 2003 (draft).

Summary

Newborn Health

Newborn health overlaps with several other interventions: safe motherhood (including malaria prevention), immunization, and nutrition (especially breastfeeding). It includes both prevention and treatment behaviors. Newborn health begins with care of the pregnant woman and extends through the first 28 days of life. Behaviors fall into several categories:

- Pregnancy (preventive behaviors and planning for delivery)
- Immediate care of the newborn
- Continued postnatal care

Specific essential newborn care (ENC) behaviors will vary according to the magnitude of newborn mortality, use of ANC services, and access to skilled birth attendance. One of the central challenges of newborn health is selecting interventions and specifying priority behaviors (see box page 30.)

PREVENTION *and* TREATMENT: ESSENTIAL NEWBORN CARE

Audiences and Actions in a Nutshell

Policymakers

- Take concrete steps to promote and mainstream newborn health:
 - Adopt a national policy supporting newborn care

- Design and fund a country strategy
- Incorporate newborn in health protocols, training curricula
- Specify goals for reduction in neonatal mortality rates
- Establish universalized registration of births and deaths

Press and Other Stakeholders

- Draw public attention to newborn health/rights of newborn

Communities

- Collective action – Identify emergency transport for newborns (as well as mothers)
- Village chiefs – Sign newborn death certificates

Mothers/Those Present at the Birth

- Complete TT immunization
- Plan for the birth (identify skilled attendant or plan for hygienic birth; have a plan in case of emergency)
- In malaria endemic areas – take malaria chemoprophylaxis and sleep under ITN
- Dry baby immediately and wrap in warm cloths—place with mother
- Breastfeed immediately and on demand

- Keep baby warm and dry
- Keep mother and baby together
- Delay the baby’s first bath for 24 hours
- Be alert for danger signs and seek emergency care
- Practice kangaroo care for a low birth weight baby
- Seek or accept a postpartum visit and have infant vaccinated

Health Workers (ANC)

- Counsel the pregnant woman (and family) on essential newborn care practices

What are the Key Challenges?

Until recently the newborn has been almost invisible at both the health system and community levels.

Advocacy and design of appropriate programs is urgent. An important task is to specify feasible key behaviors for given mortality and cultural contexts and coordinate across program areas.

- The medical community may think mortality reduction is only possible through high technology/high-cost approaches not feasible for most births.
- At the community level, fatalism may be linked to common experience as well as spiritual beliefs; many newborn deaths may not even be counted or “observed” by the community.
- The list of essential newborn care behaviors is extremely long and may be difficult for program planners to prioritize and integrate (see box at right.)
- Only trained attendants can manage some problems during the first 24 hours after birth when 40 percent of mortality occurs (e.g., due to birth asphyxia).

How are Priority Behaviors Selected?

Priority behaviors for newborn health will vary by country and by region. Behaviors must be *feasible* and have an *impact on mortality*.

The list of priority newborn health behaviors is very long, and communication specialists may feel pressured to focus on all of them.

But often the greatest impact will be gained by strengthening existing programs. In high mortality areas, this includes increasing tetanus toxoid coverage, improving exclusive breastfeeding rates, and—in endemic areas—malaria prevention.

Emphasizing family care of the *normal newborn*—drying and warming the baby, delaying the bath, and keeping mother and baby together—is also important.

WHO only recommends focusing on practices to support the *non-normal newborn* when access to skilled attendants is high (and neonatal mortality is below 50 per 1000 births).

- In many countries the majority of women have no access to skilled attendants, and may not prefer to use them even when available.
- Traditional practices vary and some may be harmful; e.g., ignoring the baby until the placenta has been born, giving a bath too early, separating mother and baby, delaying breastfeeding. Many of these behaviors have never been addressed before; determinants and relative strength of beliefs may be unknown; no “buzz” has ever been created to begin the process of changing norms.

- In most cultures the newborn is kept indoors for several weeks and the practice of a postpartum visit is unknown. These traditions delay the first immunization and may prevent early detection of problems in the first vulnerable month.

How Can Communication Approaches Contribute?

Advocacy

- Raise awareness at policy levels about the high mortality in this age group as well as the feasibility of preventing deaths even among the underserved. Focus on specific steps needed to adopt/launch/fund new programs. Facilitate collaboration between safe motherhood and child survival programs.
- Stimulate a grassroots movement, for example linked to the White Ribbon alliance, cutting across institutions and involving the media.
- When promotion of ANC visits is part of the newborn strategy, support WHO's recommendation for *fewer visits* focused on *essential services* and increased attention to *counseling*, with birth preparation discussed at the earliest visit.

Research and Program Design

- Promote a systematic process of selecting priority behaviors, focusing on those that are appropriate for the given level of mortality and current infrastructure, are feasible, and will have an impact in the short and long terms, respectively (see WHO/SEA guidance on three scenarios).
- Support the integration of key practices into ongoing safe motherhood and child health programs.
- Conduct formative research on barriers and enablers to priority essential newborn care

practices. Conduct positive deviance (doer/non-doer) research regarding those practices that are already changing (e.g., in some areas, willingness to take an infant for a postpartum visit).

- Support operations research to test new strategies; e.g., working with TBAs to carry out postpartum visits, use of simple equipment to prevent birth asphyxia, etc.

Families/Communities

- Support creative strategies at the community level for “recognizing” the newborn. Promote responsibility of village chiefs for registering births and deaths. Promote collective actions (e.g., supplying transport) for protecting newborns.
- Test/promote messages for specific actors commonly responsible for specific essential practices. At the same time, promote collective responsibility for “watching” the newborn.
- Design/test “harm reduction” strategies for those behaviors that research shows are particularly resistant to change and test messages for feasibility.
- Assure benefits to *mothers* of early BF initiation are emphasized in BF promotion activities.
- Promote first vaccination according to local postpartum strategy—using the vaccination benefit to encourage early contact with the health system. At the postpartum visit, assure importance of vaccinations is stressed and the child receives a health card.

Providers/Health System

- Design job aids for ANCs to help introduce essential newborn practices (e.g., to include newborn in discussion of emergency transport, to counsel on essential practices).

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- Support training for ANC and appropriate community workers regarding counseling for essential newborn practices. Focus on negotiation skills related to new behaviors, discussing harm reduction possibilities.
 - Revise the standard mother's card to include appropriate newborn behaviors.
 - Facilitate a postnatal contact for all babies; provide vaccination "referrals" and "counter referrals" for babies born away from their catchment areas.

3 Childhood Immunization



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The dual goals of childhood immunization are to protect *individual* children from disease by vaccinating them as early as possible and to protect communities from disease outbreaks by vaccinating adequate *numbers*. This goal of “protecting the herd” has highlighted the need for programs at scale for several decades. It has also made immunization a very visible intervention. Even the detection of measles among one or two adoptees flying to the U.S. makes worldwide news. Immunization is completely dependent on both supplies and services. There *is* no intervention without vaccines and

vaccinators and without maintenance of a cold chain from central to peripheral areas. Centralization of certain functions, even during this time of health reform, is therefore another characteristic of childhood immunization.

INDIVIDUAL GOOD, PUBLIC GOOD

The need for scale, the coordination required, the supplies and the funds, and the possibility of quantifiable “success” have long attracted donors to immunization.¹ Donors have also influenced priorities.

¹ Since 2000, the Global Alliance for Vaccines and Immunization (GAVI) has helped coordinate assistance by governments, donors (UNICEF, WHO, the Bill and Melinda Gates Foundation, and the World Bank), vaccine manufacturers, research institutions, and nongovernmental organizations. GAVI provides financial resources to countries to purchase vaccines and other supplies through The Vaccine Fund.

They have often focused on specific diseases: eradication of smallpox, for example, and more recently eradication of polio and control of measles. This commitment has led to campaign approaches.

Immunization can have high visibility at the community level as well. The social mobilization involved in campaigns and the fact that vaccines are usually greatly valued and a public “draw” have made this intervention a good platform for other ones. Vitamin A and more recently insecticide-treated nets (ITNs)—or vouchers for them—have been “piggybacked” onto vaccination campaigns. The behavioral challenges connected with these events can be multi-leveled.

Despite the centralized focus and much top-down planning, immunization is always local. Community involvement is necessary for outreach. Community coordination is necessary to support both demand creation and problem-solving. Effective “micro planning” (as the inter-agency coordinating committees call it) requires good relations and community leadership.

Immunization’s long and comparatively successful history offers many lessons for other interventions—about the power of national leadership and advocacy, about the possibilities of “branding” health practices and creating “umbrella messages,” and about opportunities and problems connected with using one behavior or product as a “hook” for others. It has also produced more sobering lessons—about the potential for campaigns to become lightning rods for political and social distrust and about the need for a long-term view.

As governments and donors focused on specific diseases, routine coverage of the primary immunizations stagnated or dropped in many areas. Since the early to mid 1990s, DPT3 rates have

declined in sub-Saharan Africa from a high of 60 percent to around 50 percent and stalled in South Asia in the mid 60s.² Health systems underwent changes during this time. Immunization suffered in some countries from sector-wide approaches and the trend away from vertical programs. This section looks at how behavior change and communication approaches can help improve coverage as well as strengthen the overall system.

THE BEHAVIORAL OBJECTIVE— “COMPLETING THE SERIES BY AGE ONE”

For parents, immunization should in theory be the most simple child health practice. In most countries the primary vaccinations require five visits before the child’s first birthday (see box page 35). Ideally the child is vaccinated at birth and the parents are counseled about when and how the child should get the next vaccinations. The family receives a health card for the child with simple pictures that act as a reminder. The card also informs a health worker if the child visits the clinic and has missed a vaccination, which should then be given on the spot.

The great majority of parents do *value* vaccinations. Research has shown that parents also value the health cards and surprisingly few lose them. If the system works right, both parents and providers have all the cues they need for these behaviors.

In the past, many programs assumed parents needed to understand what their children were being immunized against before they would act. Some put great effort into teaching parents about the various “killer diseases.” However, because immunization *per se* is valued by families, most will take their children simply if told when and where to go. Parents equate vaccinations with good health (despite the short-term

² WHO 2003.

RECOMMENDED SCHEDULE FOR PRIMARY CHILDHOOD VACCINATIONS

Visit & Age	Vaccines
Visit 1: Birth	BCG OPV0 Hep B*
Visit 2: 6 weeks	DPT1 OPV1 Hep B Hib 1
Visit 3: 10 weeks	DPT21 OPV2 Hep B Hib 2
Visit 4: 14 weeks	DPT3 OPV3 Hep B Hib 3
Visit 5: 9 months	Measles Hep B Yellow Fever **

* Only three doses of hepatitis B vaccine are needed for full protection. Schedules vary by country.

** In countries where indicated

*Recommended by WHO for developing countries.
Source: USAID 2003.*

negative consequences of a child in tears). UNICEF's massive support for Universal Child Immunization in the 1980s also helped brand vaccinations as a public health good. People often recognize the immunization logo.

The key behavioral concepts for parents are the notion of *completing a series* of visits and (in most countries) finishing the series *before the child's first birthday*. In many communities, the under-one-year old is considered particularly vulnerable so parents may be reluctant to subject an infant to vaccinations early enough. In addition to the vaccination card, communication programs have therefore devised various creative ways of motivating *completion* in a *timely* way (see box page 36). Completion is made a cause for celebration. A central communication focus is to reward *individual* parents for finishing a child's series, and communities for covering large *numbers* of children *by a particular age*.

On the surface, this does not sound like a difficult demand creation task. Nevertheless, immunization offers complex behavioral challenges.

IMMUNIZATION IS LOCAL

Knowledge (about when, where, and how often to get a child immunized) is a prime determinant of immunization. Another is *access*. In any given community, ideal practices are linked to the delivery strategies for the local area. Services might be delivered:

- Regularly, according to a schedule, at a **fixed health facility**
- Periodically, by vaccinators who come to a local **outreach site**
- Intermittently, by **mobile teams**

Elements of access include *distance* to the service, *frequency* of service, and *reliability* of service. These are major health system and supply issues. Public *confidence* in the system is a crucial determinant of action. Synchronizing demand with supply is one of the challenges of this intervention. However, good *community involvement* (as well as accurate information) can help lessen and even resolve some access problems.

TWO CONCEPTS: Timeliness and Completion

To promote *completion* of the immunization series, many programs award handsome certificates or diplomas to the parents of a child who has “graduated.”

Ecuador Timeliness can also be rewarded. Some programs only give certificates to children who complete the series before age one. In Ecuador, vaccinators in the PREMI program originally gave certificates to parents whenever the child completed the series. However, they found that children were often completing the series very late. Research showed parents were afraid of immunizing their “vulnerable” infants.

The communication program (supported by USAID’s HEALTHCOM Project from 1985-87) shifted the creative emphasis in all of its materials to the under- one-year-old. It added a gold star to immunization certificates of children who graduated before the age of one. Many mothers of children who qualified came back to the clinics to get their stars.

After two years of combined service delivery/demand creation efforts, on-time completion rates more than doubled. Improvements were as high or higher among the lowest socioeconomic levels.

Madagascar Communities can also be rewarded for graduating targeted numbers of children on time. The BASICS and Jereo Salama Isika projects (funded by USAID beginning in 1995) publicized the success of communities that immunized 80 percent of infants on time in a given year. School children helped by identifying younger siblings and making sure they got all their vaccinations on time.

Sources: Rasmuson et al. 1988; Seidel 1992; Republic of Madagascar, Ministry of Health 2003.

In addition to “routine” services, delivery strategies in some areas also include special campaigns to vaccinate children specifically against polio and/or measles. They may include “mop-up” campaigns for high risk groups and “catch-up” campaigns (for measles) targeting children up to age 15.³ On some occasions these may involve house-to-house visits. Any supplementary strategies add to the parents’ challenge of understanding *how many* vaccinations a child needs and *when and how* these should be obtained. Confusing or contradictory messages make it difficult for families to act, undermine trust in services, and even create doubts about the product itself (see also page 47).

Communication strategies have included creative ways of letting people know when vaccinations are available. A program in Madagascar developed a system of community flags to count down the number of days before vaccinators were scheduled to arrive. In Tamil Nadu, India, where vaccination is provided one day a month in rural villages, the community nutrition center organizes children’s parades to announce the arrival of the vaccinator. (The vaccinator is scheduled for the same day each month, but the celebration alerts the community and also motivates and encourages responsibility on the provider’s part.) In sub-Saharan Africa, the town criers and other traditional media have been used successfully to mobilize communities.⁴

When delivery is standardized, it is easier is for parents to show up. One study of polio

³ Mop-up strategies target high-risk and/or hard-to-reach or transient groups. Catch-up campaigns are specifically for measles and target a wide age range in order to “catch” children up to around age 15 who may have missed being vaccinated earlier (USAID 2003).

⁴ Favin 2004.

campaigns⁵ found it was especially important in slum locations to set up vaccination booths in the same place for every campaign because people quickly became accustomed to those spots, despite their transitory existence. Although top-down planning allows communities little flexibility, regimentation of delivery has been a hallmark of some successful programs. In Nepal, immunization was supported by the King in the 1980s and vaccination dates were fixed all over the country and consistent year after year. This system collapsed under decentralization but the idea of fixed dates and times remained. Now in Parsa district, for example, a single booklet gives the schedule for services in each local development community. The booklet is distributed to school teachers and others at the village development committee (VDC) level who can alert the community. The booklet also serves as a tool for checking the accountability of providers in different communities.

Whatever the delivery approach, information to the community about location and timing is vital. Equally important is that services must actually take place as announced.

Understanding Who is Being “Left Out”

Those who are “left out” of the intervention (children who never receive the first dose of DPT) are one priority for behavior change and communication programs.⁶ This is the first challenge of assuring scale. As always with issues of scale, the problem is not just to reach *more* children, but to reach those who are *different* from the majority and face special barriers.

⁵ Ibid.

⁶ In most countries dropouts are a bigger problem, but these two coverage rates should be calculated on a district wide or lower basis to determine the nature of actual problems.

⁷ Favin 2004.

⁸ Sheldon et al. 2003.

⁹ Favin 2004.

Those who are left out are likely to include remote or mobile populations, ethnic or religious minorities with special concerns about the services, high-risk children (for example girls) in high-risk families (those who face extreme poverty and/or have many children).

Communication programs classify these as both the “hard to reach” and the “hard to convince” because their barriers may fall into two different categories: *access* or *beliefs*.

Only research can determine who is left out and why. Assumptions about what is going on can be dangerous. Poor access among some groups is just one possible reason. In one country many upper class families in urban areas with good access to services did not respond to a polio campaign because they thought only the poor were vulnerable.⁷ In another country where many people were known to think vaccinations invited evil spirits, an assessment showed they nevertheless intended to vaccinate their children and their chief barrier was distance to the vaccination locations.⁸

Many programs have not done a good job grappling with such segmentation issues. Some do not have good audience data. Even those that have carried out KAPB (knowledge, attitude, practices, behavior) surveys may not use the results.⁹ Communication programs can help design streamlined audience surveys or analyze existing data to clarify barriers.

Immunization is Individual

Every child’s schedule is unique. Every family needs to know when that *particular* child should be vaccinated.

IMMUNIZATION-RELATED BEHAVIORS

Mothers and Other Primary Caretakers

- Bring children to immunization service delivery points at the ages recommended in the national schedule.
- Bring each child's health or vaccination card to each health visit.
- Treat side effects as recommended.
- Seek tetanus toxoid immunizations for yourself (mothers and other women of childbearing age).
- Look for and report any new case of acute flaccid paralysis (AFP). If a child develops AFP, bring the child to health facility immediately and encourage the child to produce two stool samples.
- For campaigns, bring children of the recommended ages to immunization sites on the day(s) recommended. For a house-to-house strategy, keep those children around the home and have them immunized when the team arrives.

Fathers

- Bring children to immunization service-delivery points yourself, or encourage their mother to do so.
- Provide mothers with money for transport or other expenses related to immunizing children.

Health Workers

- Perform immunization tasks correctly, including those that ensure safe injections.
- Give mothers and other caretakers essential information on when to return and side effects.

- Schedule and organize services to make them convenient for parents. Be reliable with services.
- Treat families well on each visit and praise families whose children are fully immunized by one year of age.

Political and Public Health Leaders

- Allocate sufficient financial and human resources to immunization services.
- Show personal support for immunization services.

Community Leaders

- Describe the benefits and safety of vaccinations to others in the community.
- Remind families when children need to receive the next dose(s) of vaccine.
- Encourage families to complete each child's basic immunizations in their first year of life.
- Inform families when and where outreach services and supplemental immunization activities are taking place and about new vaccines or other improvements in the immunization program.
- Assist health facility staff in planning and monitoring services.
- Provide logistical support, e.g., by transporting vaccines, supplies, and staff.

Source: Adapted from USAID 2003.

The highly visible social mobilization side of immunization (especially campaigns) has tended to obscure this important fact.

The most useful, even necessary channel for communicating *tailored* messages is interpersonal. Even where mass media, local animators, or other media activities have been launched, health workers are often still cited as a major source of information about immunizations. The quality of provider interactions with families is also a very strong factor in utilization of services.

THE PROVIDER MAY BE PRIMARY

Many experts believe the provider should be the major focus of behavior change efforts in immunization programs.¹⁰ The many roles of the provider and his or her influence on the immunization status of children are often overlooked. This influence is very strong. In fact, *most parents will do what the health worker tells them*, as far as immunization is concerned. However, communication programs rarely pay adequate attention either to understanding provider behaviors or planning strategies to improve their practices. Program managers also tend to assume that families are the sole or at least major targets of communication. The next three sections look specifically at provider behaviors.

Initiating the Series

Counseling about vaccination should be part of birth preparation. As we saw in the last section, vaccination can actually serve as the motivation for a postpartum visit.

The first immunization is crucial and has many implications for subsequent behaviors. If the mother delivers in a health center or a maternity ward, her infant should receive BCG and polio (and in some

NEVER FORGET THE CARD

The child's immunization card (or child health card) is the premier communication tool. Some experts think it should be included on the essential drug list so that clinics never run out of these supplies.

Madagascar Vaccination cards used to be available only in clinics, but in 2002 the Municipal Offices started disseminating and promoting them so that when a couple came to register their marriage or the birth of their child, they could get the booklet right away. The cards are illustrated booklets that follow the child through different ages and include messages for each age.

Ecuador A study in 1986 to find out the reasons for dropouts discovered that a quarter of children's immunization cards had no dates written on them and half of the mothers could not interpret what was on the cards. Observations also showed that often no verbal instructions were given on when to return. Although the study was originally designed to find out how to improve *demand* for services, the conclusion was health workers needed better training in *using* and *explaining* the cards.

Honduras In rural areas, observations in the early 1980s showed mothers were bringing in children who had already been completely immunized. Mothers had vaccination cards but could not read them, and health workers did not explain when children "graduated." Instead, they berated the mothers for bringing children in unnecessarily. The communication program revised the card and included pictorial messages pretested with mothers.

Source: Rasmuson et al. 1988.

¹⁰ There was surprising consensus on this point among those interviewed for this paper.

cases hepatitis B) vaccinations before leaving. The provider should fill out the child's immunization card, explain it, and emphasize the importance of going for the next in the series. A study in Mozambique found that children of mothers who were *counseled* about the *importance of vaccination* at the time of their child's birth were more likely to complete the series than other children. Receiving the vaccination alone was not sufficient to have an effect on future behaviors.¹¹

A small number of exit interviews at facilities where women give birth can help determine whether they have received the first vaccinations and related counseling. Quick assessments can also identify problems and whether they have to do with supply, policies, knowledge, or attitudes.

The mother who delivers outside a facility faces several constraints. One is that she may return to her parents' community for the birth and end up out of her child's catchment area. Neither she nor the infant will appear on the local health provider's register or map. A simple referral slip provided at her antenatal visit can empower the mother to seek postpartum services (including vaccination) wherever she gives birth. Providing a concrete link for the mother to services at her place of delivery is a communication task for both newborn and immunization programs. The local vaccinator should also have a record of infants born to mothers in the community so any who later seem to be "left out" are "sought out." Both of these simple information tools require communication between the antenatal program and the immunization program.

Continuing the Series—Preventing Dropouts

Many more children *drop out* of the immunization series after receiving one or more vaccinations than are left out entirely. WHO considers a dropout rate of more than 10 percent a problem. Any level of dropout indicates a problem, however.

Dropout problems may involve access issues but are usually an indication something else is going wrong. These are families who were motivated and successful in starting the series. What happened? Analyzing and understanding this problem is usually one of the *primary research tasks* of a communication program. The task should be appreciated and taken on by the overall program. However, communication experts may have to instigate this, and should in any case be knowledgeable about the dropout data. Problems may vary by district and even by community. Coverage data can help locate problem areas. In addition, a combination of simple exit interviews, observations, and "doer- non-doer" assessments (views of parents who return, and of parents who do not) can help illuminate what the underlying problems are. Each of these techniques has different strengths and weaknesses, so use of multiple methods is best if possible.¹²

Common reasons for dropping out are:

- ***Demeaning or Punishing Experience for the Parent:***

Many providers treat families badly or even abuse them. Parents often report that health workers yell, criticize them, and discourage questions.¹³

Unfortunately this is one of the most commonly cited barriers to immunization. Combined with

¹¹ Sheldon et al. 2003.

¹² Shafritz et al. 1994.

¹³ Sheldon et al. 2003.

the frustration of long lines, late openings, or even cancelled services on announced days, ill-treatment can discourage return visits. Poor vaccination techniques can also cause anxiety in parents. Health workers may be poorly trained or use needles that are old and blunt.

- ***Lack of Information:***

Parents may not be counseled on *when* to bring the child back for the next vaccination. Many health workers do not fill out immunization cards, either because they're too busy or because they think parents can't read them. Often health workers don't know how important it is to make sure parents know when to return or to ask if they understand.

- ***Poor Synchronization of Supply and Demand:***

The delivery system loses credibility if it does not provide services as advertised. Failure of scheduled services to materialize, late openings, long lines, and shortages of supplies are common complaints.

- ***Concern About Side Effects:***

Many children have minor side effects (fever, temporary redness). Parents should be told this is common, what to do about it, and not to worry.

The nature of each vaccination experience clearly affects whether a child will or will not be brought back. Some factors are structural and supply-related: e.g., delayed or failed openings and long waiting times (see also discussion on health system-community relations page 45). However, the first three issues are directly related to health provider behaviors.

Besides giving the injection, the ideal provider practices are to:

- Emphasize the importance of vaccination
- Fill out the health card and explain it

- Explain where and when to return for a next immunization, and how many in the series remain
- Explain common side effects and what to do about them
- Respond to doubts and fears
- Respond to questions
- Congratulate the parent.¹⁴

These behaviors are rarely emphasized in a supervision visit or assessed in any way (see box page 42). Many vaccinators have not been trained for a number of years and supervision is almost always weak. Communication programs can provide materials and improve training.

The All-important Child Health Card

The card is a vital record for parents and a communication tool for the health provider. If it is not well designed, the provider may think the parent won't be able to understand it anyway. Many experts believe the card should have the status of and be supplied as reliably as an essential drug.

Basic Job Aids

Every health worker should have a simple job aid with message guidelines. A vaccinator usually has only a few seconds with a child and time for just a brief exchange. Creative reminders of the priority messages—what to do about side effects, when to return, how many vaccinations remain, and the absolute imperative to congratulate the parent—will help them focus on the key “doable” actions in this short amount of time.

Training

Any opportunities to train vaccinators should include attention to counseling skills. Improving positive

¹⁴ Ibid.

IDENTIFYING BARRIERS FACED BY PROVIDERS

Small-scale studies using multiple methods can illuminate the reasons for dropouts. Sometimes underlying problems can be traced to barriers faced by *providers* and communication experts can often devise solutions to address these.

Analyzing dropouts In 1992 USAID carried out a measles initiative in Kenya, Burkina Faso, and Niger combining communication and quality improvement approaches. The first step was qualitative research to understand dropout rates. Studies in all three countries revealed poor communication in the clinic. But the *barriers faced by health workers* were quite different.

Three countries, three barriers In one country, health workers had an average of only 15 seconds to communicate with a mother. The program needed to devise a training program that helped them convey a few key messages. In the second country, the chief problem was that health workers were not following norms. Any child with a mild fever was sent home without a vaccination. Health workers had heard of the official protocol but said they wanted technical information to assure them it was safe to vaccinate a sick child, and *evidence* of the norm to back them up.

In the third country, the problem was purely one of health worker attitudes toward the clients. Mothers simply did not want to attend a second vaccination session once they had experienced ill treatment at a first.

Sources: Sheldon et al. 2003; Shafritz et al. 1994.

interpersonal interactions—indeed, changing the norm for how providers treat parents—requires more than job aids. Health workers need to understand their clients' concerns and perspectives. The results of audience research should be fed back to them. What

are parents' concerns? Why don't some return? How many of them understand or worry about side effects? Health workers should understand that their own behavior affects dropouts. Many observation studies have also shown health workers giving information but mothers not hearing it. Training has to address cultural issues, as well as good listening skills and how to answer questions. Training should be based on behavior principles: modeling and practice of skills, positive reinforcement, and competency testing.

Many vaccinators have not received refresher training in years. Communication programs may not have the opportunity to improve the basic system. However, polio and measles campaigns always include orientation for vaccinators. At a minimum, basic communication skills should be discussed in this preparation.

Work Flow

Time constraints are sometimes a function of workflow organization in a clinic. Health facility assessments can be an opportunity to look at time available for counseling and how this can be improved.

Supervision

Supervisors also have little time and their visits are irregular. They are usually concerned with filling out checklists. These checklists should include questions about whether the parent is counseled and on what key messages. Supervision should also cover professional behavior. Does the provider congratulate parents—or criticize them? Similarly, does the supervisor congratulate the provider? Regularizing simple questions like this in formal checklists and reviews are a first step.

Avoiding “Missed Opportunities”

A child who has dropped out of the immunization series or who is late can be caught up whenever he or

she is brought to a clinic. This is part of the IMCI protocol. However, health providers often miss these opportunities. Observations and exit interviews can help reveal what the problems are. Lack of supplies might be one reason. Other common reasons are behavioral. Key factors and related communication tools include:

- ***Mistake In Protocol:***

A provider may decide not to vaccinate a child who is sick or may give only one vaccination when several are due. These common mistakes may be due to lack of *time* or *equipment*, lack of *knowledge*, or lack of *confidence* in being able to explain procedures or reassure parents. A vaccinator may also be unsure how to interpret waste reduction policies.

Job Aid to Clarify Norms and Justify Action:

A simple job aid clarifying contraindications (when *not* to give a vaccination) and other norms serves as a reminder and also empowers the health worker in communicating with parents. Many health workers also want something “official” stating the ministry policy to justify and support their actions in case questions are asked.

- ***Problem With Protocol:***

Sometimes protocols are simply unsupportive. If vials are large and should only be opened for a weekly vaccination day, opportunities to vaccinate may be missed. Gathering information about missed opportunities can reveal such problems and the data should be passed to those in a position to review policies.

Feedback:

Feedback from observations or from a health facility study will give those in charge of policy an opportunity to assess implications and decide whether and when flexibility should be allowed. Also, the supervisor often has to give explicit

instructions on how to balance waste reduction with patient flow.

- ***Overlooked Opportunity:***

The health worker should check the vaccination status of any child who comes to the health center (for growth monitoring, for treatment of an illness). However, he or she may not know this, may forget to check the card, or may be too busy to give a vaccination.

Reminder Materials:

The health worker needs reminding but so too does the parent. Print materials posted in the health center can remind the parent to “Ask about your child’s immunization status” and thus also remind the health worker. If dropouts and missed opportunities are a major problem in some region, one strategy is a “reminder campaign” on the radio and through other media.

Preparing Providers for the Front Lines

The health worker’s role in answering questions and concerns can be critical when a new vaccine is introduced (such as hepatitis B), a new technique is used (such as auto-disable syringes), or rumors begin to fly. This is particularly true during mass campaigns when immunization draws public notice and attention from the press. Research has shown that many uncertainties and suspicions about vaccines can be resolved through information from a trusted health worker.

When a new vaccine is introduced, simple technical briefing and Q&A sheets should provide health workers with information and confidence that they can answer questions. Programs need to anticipate community concerns and update this information quickly if necessary. Providers also need to be reminded that their role in reassuring parents is very important.

MAKING SURE EVERYONE'S ON BOARD

In 1990, the Philippines MOH integrated *emphasis on measles with regular service delivery, rather than launching a full-fledged measles campaign*. The Ministry called special attention to the dangers of this disease through a mass media campaign. The goal was to improve measles coverage but also to use measles as a “hook” to bring children into the system who might also be missing other antigens.

Preparing the Providers The program, which received assistance from USAID's HEALTHCOM Project, conducted a launch phase with “sales conferences” for the health workers to prepare them for the expected rise in demand, and also to answer questions. It also provided an opportunity for a “review” of clinic guidelines, although the reality was that many health workers never had a chance to discuss immunization norms. Previous studies showed that even physicians and nurses often turned away infants with colds or slight fevers.

Feedback Systems to Assure Cohesiveness Providers received monitoring forms for recording immunizations but also for sending comments and questions to the central level. One center reported private pediatricians were spreading rumors about the vaccines. Another reported problems with supplies. Another suggested the secretary of health should visit a few low-performing centers as a morale booster. The department was able to respond promptly to the problems. The opportunity to provide feedback to those in charge was itself a strong support.

Results The six-month nationwide urban campaign in 1990 increased measles coverage of 9- to 23-month olds from 54 to 68 percent. Complete immunization coverage for 9- to 11-month olds increased from 33 to more than 56 percent. Timeliness of completion also increased sharply.

Source: Cabañero-Verzosa et al. 1989.

Some countries announce new combination vaccines with public promotions. Depending on the local context, another effective strategy may be to simply continue promoting the concepts of *completion* and *timeliness* without highlighting specific vaccines—just as past program experience has taught us. However, in either case, programs need to *prepare* health workers to *answer* questions.

These preparations and materials do not have to be elaborate. But they should be timely and they should anticipate questions and problems *before* they require “damage control.”

MOTIVATING AND SUPPORTING CLIENT-HEALTH WORKER RELATIONS

The general atmosphere in clinics is a concern for all health interventions (or a “gateway factor,” as mentioned in the introduction). Relations between health providers and clients are inevitably a challenge because of differences in status and often in ethnic and cultural background (and sometimes language). Most providers work under dismal conditions. They are underpaid, paid late, and overworked (especially since the AIDS epidemic, which has left large numbers of positions unfilled). They often lack essential supplies. Many are sent to places far from their homes and suffer from a sense of isolation. They may feel that they have little in common with their clients. They also have little opportunity for professional development. Supervisors rarely visit and may be critical rather than constructive.

It is difficult to demand a client-friendly atmosphere under such conditions. However, behavior change interventions *must* look at ways to provide incentives and positive motivation to health workers for performance. For workers involved in routine vaccination, the task is complicated by the fact that accelerated disease control programs (polio and measles) have funds for per diems and other incentives, whereas clinics do not.

IMPROVING RELATIONSHIPS TO IMPROVE COVERAGE

“I talk with the community now, and more children are being brought for immunization. Before, I was telling people what to do. Now I am discussing with them.”

-Health Worker, Koboga

During the last decade EPI coverage has been low in much of Uganda despite documented community interest. One of the problems identified was “growing mistrust by communities toward operational level health workers.”

The Reaching Every District (RED) initiative included Community Problem Solving and Strategy Development (CPSSD) training to help workers understand their communities’ perspectives and encourage them to work together.

CPSSD includes district training teams that help health workers learn to interview parents about their knowledge and views of services. The workers also learn to create a simple EPI monitoring chart and use it to present information to the community.

The next step is outreach through community meetings and home visits. The health workers meet with leaders and mobilizers in their communities to identify both demand and supply problems and come up with solutions. Both local and district-wide plans are developed based on what is learned.

After the program (which received assistance from USAID’s BASICS Project) was introduced in Kiboga District, DPT3 coverage rose dramatically from the first to the third quarter of 2003, almost doubling the number of children fully immunized.

Source: *BASICS II 2003*.

The focus should be on sustainable approaches that make the vaccinator’s job *easier*, reward *performance*, and engage the community in *showing appreciation*. Health workers also have to be empowered to send accurate information up the system—to complete monitoring forms and to report stock-outs—and to be rewarded rather than punished for sharing helpful information. The fundamental issue, however, is that the health system and communities must be focused on *solving problems together*, so that they can also celebrate together. This is discussed in the section that follows.

USING DATA TO BRIDGE THE COMMUNITY/HEALTH SYSTEM GAP

Stagnating *routine coverage* in some regions has led to a new initiative promoted by WHO and UNICEF known as RED, or Reaching Every District. RED is a strategy for helping programs advance toward the 2010 Millennium Development Goal of ensuring full immunization for 90 percent of under-ones nationwide, and at least 80 percent in every district. RED aims to reduce both “leftouts” and “dropouts.”

The initiative uses data as a tool for bringing together the health worker and the community to solve problems and to reflect on achievements. It involves regular meetings between community and health staff. Two important tools include:

- A map of the community to identify left-outs and dropouts
- A community-wide EPI Monitoring Chart posted in the health facility

As part of the training under RED, health workers learn to use these tools to track problems and progress and to provide information to their communities. Collecting the data is not enough—health workers learn to interpret the data and share information with leaders and community members. RED focuses on four

SETTING GOALS AND CELEBRATING

In Madagascar, community mobilization as part of the BASICS and Jereo Salama Isika projects focused not only on demand for services but on community relationships with the health system. The program also established an atmosphere of achievement and celebration under a scheme of “Champion Communities.”

Community Health Action Committees (CASC) were established in each commune, consisting of various local officials including the mayor, health providers, and schools. The local mayor or the President of the Fokontany (group of neighborhoods) was asked to sign a “contract” of participation to improve the health of the community. The idea was for the health workers to become responsible to the community—but not specifically for social mobilization. That was left to the CASC.

The Champion Community Programs set specific goals: 80 percent of all children under 12 months completely immunized; 65 percent of parents of newborns using the child health card. The community also agreed to hold a mini-festival three times a year.

The Child-to-Community Component awarded special status to “Beacon Schools.” A school could qualify if 80 percent of infant siblings of students were immunized by the age of one. In one district immunization rates increased 15.7 percent from 1998-2001 during the child-to-community interventions.

In urban areas where the concept of community was less developed, the program linked with churches.

Public recognition was an important part of the program. Festivals were held to award Champion Community status, and the names of communities were publicized on the radio.

Source: Republic of Madagascar MOH 2003.

indicators and ways of making these meaningful to the community. The indicators are overall coverage (number of children reached), completeness, timeliness, and quality of the data.

The tools promote self-monitoring and interaction with the community. They also provide a new focus for the supervision system.

As a first step, health workers learn to interview parents about their knowledge and views of services. This information is used as a basis for group meetings with leaders and mobilizers. The goal is for the community to discuss problems and identify solutions. Outreach strategies—such as the scheduling of mobile brigades and the timing of services—are then planned (or replanned) with the community.

The goal is for communities to work with the health system to find solutions to both supply and utilization/demand issues. There are many ways for communities to support the system: by helping with transportation, supplying kerosene for the refrigerators, or housing outreach workers. They can also help identify dropouts and bring them to services. If a community’s needs are being listened to, they are more likely to help support the system.

Although the initiative has a new name and funding, these strategies are not essentially new and need not be costly (see box at left). The two important principles are simple community monitoring tools and working together.¹⁵ Immunization programs that are not receiving funds from RED should also be able to institute these principles, particularly with help from local NGOs.

¹⁵ Two aspects of RED are atypical of some community/communication programs. Many people believe health workers should not be responsible for interviewing families because people will not respond candidly; many also believe that health workers simply don’t have time to mobilize communities and that local leaders should play this role (see box above on Madagascar for example.)

Health communication programs often look at discrete “audiences” and not specifically at the relations between them. The ability, and the regular practice, of meeting to discuss and resolve problems, however, should be a major goal of all child health interventions.

ACCELERATED DISEASE CONTROL—BEYOND ROUTINE BEHAVIORS

For more than a decade, donors interested in immunization have focused on campaigns to eradicate or control single diseases. One of the challenges has been to improve routine or “primary” immunization in this context. Polio and measles campaigns have produced important best practices but also highlighted problems related to behavior change at many levels. We cover these briefly here because campaigns are a reality of immunization programs and affect other child survival interventions.

Advocacy and Planning

At the national level, immunization planning begins with the Interagency Coordinating Committee (ICC) and its various working groups. One of these may deal with Communication and Social Mobilization. ICCs have been very successful in national advocacy efforts. They have mobilized the media and religious bodies, the army, the education and agriculture sectors, commercial partners, and nongovernmental organizations to contribute to polio campaigns. Heads of state and their wives personally launched National Immunization Days in many countries. This advocacy has had a cascading effect through lower institutional levels in different sectors. With help from international organizations, collaboration has also led to Days of Tranquility (for example, ceasefires in the Democratic Republic of Congo) during scheduled campaigns. Polio eradication was identified not just as a health issue but

an issue of national pride. NGO involvement was strong and crucial.

Gaps in communication activities have been predictable. The Communication and Social Mobilization Working Group is usually functional at the national level but very weak at lower levels. *Communication* planning usually begins too late to look at *behavioral* issues. Activities are not sustained throughout the year. The focus is on campaigns rather than strengthening child immunization generally.

Communication and behavior experts can support changes in the planning processes to address these gaps.

Communication and Social Mobilization in the Context of Decentralization

Campaigns have taught important lessons about how to combine national leadership with decentralized implementation:

- Data can be used to inspire performance and friendly competition (among provincial governors as well as NGOs).
- A useful strategy is a national umbrella campaign (through mass media and the press, for example) coordinated with production of materials at district levels. Clear guidelines (and prompt funding) are necessary to assure message consistency. Actual implementation at lower levels allows materials to be appropriately adapted. This also avoids the familiar bottlenecks associated with centralized distribution.
- Local leaders can move mountains. In Mozambique, community leaders walked hours to inform people when teams would be arriving. In Mali, traditional chiefs of nomadic populations were effective in coordinating logistics and mobilizing their groups. Women’s groups were also effective mobilizers.

- Local leaders can also be involved in *planning* interventions as well as mobilizing populations. And local planning need not be left only to remote ethnic groups.
- Planners need to spend more time looking at behavioral issues—as opposed to just demand creation. To date, social mobilization efforts have far exceeded activities in support of “program communication”(UNICEF’s term for analyzing and supporting specific behaviors).

Campaigns in the Context of “Completion and Timeliness”

For parents, campaigns can cause confusion about what *completion of the series* and *timeliness* mean. A child may receive numerous polio vaccinations up to the age of five. Measles catch-up campaigns target children up to 15 years of age. None of these extra vaccinations are marked on the child’s card. Campaign delivery may also confuse the parent. For example, if a vaccinator comes to the house for one round, the family may decide any important vaccinations will be brought to their door.

Demand creation is therefore not the only communication task of a campaign. Rather, *clarity of message* in the context of the series is critical. Many campaigns have provoked confusion. This confusion can also feed into rumors.

Although vaccinators in a campaign setting have little time, they should explain to each parent that they still need *to complete the series*. They should also explain that families must return to their *regular delivery system* for additional vaccinations. Community volunteers, if well-organized and -oriented, can also counsel caregivers at campaign vaccination sites.

Impact on the Routine System

Campaigns can deplete the regular service delivery system. They require extra work from staff and consume local resources. Fatigue is also a problem among partners. In Bangladesh, some NGOs stopped participating in polio mobilizations after several rounds.

Less obvious behavioral challenges relate to the mixed blessing of “piggybacking” on immunization events. Both polio and measles campaigns have been powerful platforms for other child survival services. Vitamin A capsules have been delivered with polio vaccinations on national immunization days (NIDS). ITNs and retreatment kits have been distributed during measles campaigns.

Programs must study how public expectations (and communication messages) will either complement or confound each other when services are combined. In these settings huge efforts are needed to manage logistics, deliver services and products, and keep records. Staff and volunteers have little time to communicate with parents. Communication experts must analyze what the key messages are, what materials will help, and how providers will be oriented to their roles.

The scale of programs that combine services also has to be considered. In Ghana, a measles campaign that distributed ITNs in just certain communities found that parents were refusing to come for immunizations in some nearby areas that promised no nets.¹⁶ A campaign in India met with a near stampede when nutritional biscuits were distributed with vaccinations. Parents brought children back multiple times and there was a public outcry when the biscuits were discontinued. Communication experts should help anticipate problems that relate, for example, to providing and withdrawing (or inequitable provision) of *incentives*.

¹⁶ Marfo et al. 2003.

WHAT MAKES A DIFFERENCE?

Zambia's routine polio coverage rate of over 80 percent (as of 1996) was relatively high for the sub-Saharan region. A number of factors for this success were identified:

Grassroots Mobilization Local political and religious leaders, mayors, women's groups, and village chiefs were involved in social mobilization. In particular, the participation of Neighborhood Health Committees elected by the community was important because they were trusted by the community and "live with them."

A Plan for Rumors Rumors were successfully handled through community-level strategies including:

- Written guidelines to support district-level planners
- Interpersonal communication by outreach workers and door-to-door vaccinators
- Involvement of community/religious leaders
- A centralized spokesperson: inquiries from the various levels were funneled to one person when any official comment was needed.
- Guidelines for working with the local press

Messages to Strengthen Routine Service Even during the polio campaign in 1998, 85 percent of volunteers reminded mothers to come back for regular immunization. (Although 53 percent of mothers interviewed did not remember the information.)

Sources: Favin 2004; UNICEF et al. 2000.

Preventing Campaigns from Becoming Lightning Rods

The high visibility of campaigns, the government sponsorship, and the donor backing can all produce a lightning rod for rumors. The extreme example is Nigeria, which in 2003-2004 effectively exported polio to other countries because of one state's opposition to the campaigns.

Common rumors about vaccinations are that they contain anti-fertility drugs; that they are actually blood contaminated with HIV; and that they are unsafe and will spread the disease rather than prevent it. People also have questions about campaigns: Why all the resources on *this* disease when it kills few or no people? Why is the vaccine different from the one given to children in western countries?

The Nigeria case raises concerns about the vulnerability of health programs to anti-government efforts of different types. Communication planners can often take effective steps to avoid rumors or control damage, however. Many problems can be avoided with foresight and good planning. In Uganda, for example, a polio campaign was scheduled during the malaria season. Many children died right afterwards. At a minimum vaccinators should have been impressed with the importance of giving a clear message that parents might expect a little fever as a side effect, but should seek treatment immediately if the fever continued. The program could also have anticipated the unfortunate temporal overlap of increased deaths during this time and been prepared to communicate appropriately with the press. In Kenya, a polio campaign was held at the same time as a campaign to stop AIDS. Some people thought the vaccine was laced with contraceptives; a high profile Bishop insisted the vaccine was unsafe.

Officials have to be prepared to answer questions and they should also prepare health providers to answer questions. Adequate information can resolve many

STRENGTHENING THE SYSTEM

WHO and UNICEF agreed on a checklist of actions that should be taken during *campaigns* to strengthen *routine* delivery. Below is a selection of the 17 actions most pertinent to behavior change programs.

Advocacy

Compare Performance When reporting polio coverage, compare with DPT3 and measles (for example), publish tables comparing district coverage.

Troubleshoot Use the high visibility of campaigns to solve administrative and technical bottlenecks around routine immunization (e.g., slow release of funds, staffing).

Information, Education, Communication

Generate Demand Include messages in campaign training, material, or media events about other EPI vaccines and the need for children to be fully immunized.

Social Mobilization

Use the Organizations, Leaders, Media, and people mobilized for disease eradication to support the delivery of routine services in all areas.

Service Delivery and Supervision

Build capacity Use disease eradication training opportunities to refresh routine immunization skills and knowledge.

Work Together Combine surveillance and routine supervisory visits.

Source: WHO 2001.

concerns and dispel many rumors as they emerge. Some rumors will be started by disgruntled politicians or other leaders in order to purposely discredit a campaign. However, an analysis of lessons learned in several East African countries concluded that in most cases people come for vaccination even when they hear rumors, that they trust health workers, and if their questions can be answered, damage can be controlled.¹⁷ Simple Q&A sheets, updated as rumors begin to circulate, and engagement of local community leaders are crucial.

Immunization is local. Rumors must be countered locally. A national response may or may not be appropriate. Giving rumors national attention can sometimes be hazardous, while addressing them locally is critical. The local press are especially important partners. This relationship needs to be cultivated over the long term.

Working with Donors to Strengthen the System

Governments and donors agree that disease eradication efforts should be planned in ways that will strengthen the routine systems and promote timely completion of the basic child immunizations. WHO and UNICEF created a checklist for ways to use campaigns to strengthen *routine* delivery. It includes 17 specific actions and nine indicators for monitoring the process (see box at left). In reality these actions are rarely given much attention. Communication experts should refer to these whenever they are involved in vaccination campaigns.

¹⁷ UNICEF no date.

Summary

Childhood Immunization

Immunization according to a recommended schedule in a child's first year of life protects against infection and possibly death due to a range of diseases including tetanus, diphtheria, pertussis, polio, measles, hepatitis B, *haemophilus influenzae* type b (which causes some meningitis and pneumonia), yellow fever, and tuberculosis.

PREVENTION

Audiences and Actions in a Nutshell

Families

- Complete the series of routine or “primary” vaccinations by the child's first birthday (*five visits beginning at birth or as specified on the child's health card*)
- During any supplemental campaigns, take a child of the recommended age to a vaccination post (*or assure the child is at home during a house-to-house campaign*)
- Treat side effects as recommended
- Take the child's vaccination card whenever visiting a vaccination post or health center

Health Workers

- Fill out the vaccination card and explain what is being written. (*Tell caretaker when to return for the next vaccination; explain how many visits remain.*)

- Explain what to do in case of side effects
- During a campaign, explain that the routine vaccinations are still necessary at the health facility or outreach site

Communities

- Work with health staff to plan convenient times and locations for vaccinations
- Provide logistical support (*help with transport or supplies for the cold chain*)
- Help mobilize families and help track down the hard-to-reach or dropouts

Policymakers

- Increase funding and program support for routine immunization (*in addition to single disease campaigns*)
- Ensure that messages about routine immunizations are reinforced during campaigns
- Ensure synergy between immunization and any “piggybacked” interventions during campaigns

What are the Key Challenges?

Routine immunization rates have stalled or dropped in many countries during the last decade. Immunization has suffered in some countries from sector-wide approaches and the trend away from vertical programs. And donors interested in immunization have focused

on campaigns to eliminate specific diseases (polio, measles) rather than on strengthening basic services.

- Every child's immunization schedule is unique to that child; a parent must understand *when* and *where* to go for *that child*.
- If a woman goes to her parents' home to give birth ("out of catchment area") her child may not receive a timely first vaccination or a vaccination card.
- Immunization cards indicating a child's schedule are rarely designed for low-literate parents.
- A health worker may not explain what is written, or may not fill it out at all.
- Children who are completely *left out* may be "hard to reach" or "hard to convince," or face other barriers. Good segmentation data may not exist, or may have been collected but not used to address these problems.
- *Dropouts* may be a bigger problem than *leftouts* but research is rarely done to analyze dropout problems.
- "Missed opportunities" to vaccinate are linked to a number of health provider issues (both logistical and behavioral).
- Communication programs generally focus on "demand creation" even though many barriers center around the vaccination experience and *health worker* behaviors.
- Campaigns may cause confusion in parents' minds about when and how they should complete the child's primary vaccinations.
- The "piggybacking" of other interventions on immunization campaigns reduces the time available for sharing critical information.
- Campaigns can become lightning rods for rumors or for political conflict.

How Can Communication Approaches Contribute?

Research

- Use coverage data and qualitative research to target children who are "left out." Conduct exit interviews and observations to analyze "dropout" problems as well as missed opportunities, and to understand health worker-client communication. Doer-nondoer research (in-depth interview or group discussions) may also be helpful.

Providers

- Strengthen role of the health worker as a primary communication channel: Create job aids that address identified problems, such as updates on protocols to prevent missed opportunities, Q&As on new vaccines.
- Strengthen training in interpersonal counseling. At a minimum, supply simple guidelines on key messages.
- Collaborate with antenatal programs to assure antenatal contacts include emphasis on where/when/how to obtain the first vaccination—use the vaccination "benefit" to promote early postpartum contact.
- Design vaccination "referrals" and "cross referrals" for providers to give mothers whose babies will be born away from their catchment areas/assure information reaches local vaccinators.
- Motivate vaccinators to send accurate information up the system: complete monitoring forms, report stock-outs.
- Find opportunities to reward health workers and communities for *routine* vaccinations as well as campaign achievements.
- Add specific communication messages/skills to supervision checklist for providers.

Demand Creation or Personal Attention?

We usually think of the family as the primary “audience” for behavior change interventions. But for immunization, health worker behaviors are especially critical.

Although we often think of immunization as a “mass” activity requiring intensive mobilization, completion of the primary vaccinations is a highly individual behavior. Each parent needs to know how many times to vaccinate his or her child and when.

Many children “drop out” of the immunization process because health workers don’t explain when they should return, may fail to warn them about side effects, or may make the parent uncomfortable. A health worker may also “miss the opportunity” to vaccinate a child who comes to the health center.

Exit interviews and clinic observations help reveal the reasons for dropouts and missed opportunities. Simple job aids and training can make a difference.

Families and Communities

- Design vaccination cards that can be interpreted by non-literate parents. Provide these to parents as early as possible (during antenatal care for example).
- Promote the concepts of *completing a series of visits* and finishing the series in a *timely way* (for example, by the child’s first birthday if appropriate).
- Highlight and reward “timely completion” (e.g., give diploma); design activities to reward communities/celebrate coverage of large numbers of “completed” children.

Health System and Community Linkages

- Encourage health system/community problem solving. Empower communities to negotiate convenient times for vaccinations, support vaccination teams, mobilize citizens (town criers, etc.)
- Create simple data collection and mapping tools to inform communities about problems, engage them in tracking down leftouts and dropouts.

Campaign Coordination

- Early in campaign preparation, draw attention to key behavior issues, rather than just demand creation.
- Balance “generic” national level communication with support for community-level mobilization as well as community-level *planning*.
- During planning, analyze total integrated “message” package and design/pretest how these will be delivered by available providers/volunteers.
- Design messages that reinforce/clarify messages related to routine immunization visits.
- Use training opportunities in campaigns to model/role-play interpersonal communication skills.
- Prepare health workers and local leaders for common rumors; supply Q&A and guidelines related to dealing with rumors.

Advocacy and Press Relations

- Cultivate ongoing relations with the national as well as local press. Supply basic facts and Q&As in advance of campaigns, introduction of new vaccines, and periodically for the routine program. Make contact quickly in case of rumors, especially at the local level.

4 Diarrheal Disease



Diarrheal disease is responsible for about 19 percent of child deaths among countries in the developing world with the highest child mortality.¹ Poor nutrition and inadequate sanitation and clean water make diarrheal disease a major source of mortality across all regions. These underlying causes are linked directly to poverty.

Children are at greatest risk between the ages of about 6 to 11 months. As they are weaned, infants are exposed to unsafe food, water, and unsanitary surroundings. They begin to lose the protective effects of their mothers' immunity and the immunological benefits of breastmilk. Inadequate feeding practices

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may undermine their nutritional status. This is the period when growth curves often dip sharply. Proper nutrition, especially exclusive breastfeeding in the first six months and then continued breastfeeding through at least age two, is one of the most important interventions for the control of diarrheal disease. Infants under six months who are only partially breastfed are 8.6 times more likely to die from diarrhea than infants exclusively breastfed.²

Continued and more frequent feeding during and after bouts of diarrhea is crucial for recovery. Attention to feeding can also stop the deadly synergy between undernutrition and repeated illnesses. Many experts say

¹ Bryce et al. 2005.

² USAID 2004.

it is unethical to address diarrheal disease without discussing nutrition.³

PREVENTING THE DISEASE

About 25 percent of measles mortality is due to diarrheal dehydration.⁴ Measles immunization can reduce diarrhea incidence and death. A vaccine for rotavirus also has the potential to reduce mortality. Micronutrients, especially vitamin A and zinc, have protective effects against diarrhea. Recent studies have shown that zinc supplementation reduces the *severity and duration* of diarrheal episodes, and can also help *prevent* occurrence of diarrheal disease.⁵

However, some of the most powerful interventions to *prevent* diarrheal disease fall under environmental health. About 88 percent of diarrheal deaths can be linked to inadequate and unsafe water and lack of sanitation.⁶ Effective interventions focus on family and community practices and appropriate technologies (see box page 57). Use of latrines can reduce diarrhea incidence by 27 percent.⁷ Proper handwashing can reduce the risk of diarrhea by 47 percent.⁸ Although handwashing is often incorporated into child survival programs, hygiene improvement behaviors *per se* are usually supported by separate programs and other bureaucracies (the ministries of water resources, public works, agriculture, and environment, as well as health and education). There have been few integrated programs to reduce diarrheal disease, combining both environmental and health emphases. This is a missed opportunity for bringing to bear experiences from

strong traditions in both individual and community behavior change.

PREVENTING DEHYDRATION AND DEATH

Since the late 1970s the major focus of programs to control diarrheal disease (CDD) has been on a health product that in 1978 the Lancet called “potentially the most important medical advance this century.”⁹ Oral Rehydration Salts (ORS) restore fluids and electrolytes and prevent deaths due to dehydration. Until its introduction children were only rehydrated with IV fluids. The discovery made an inexpensive life-saving product available to health providers in resource poor settings and to families. Oral rehydration therapy (ORT—a combination of hydration and feeding practices) contributed to dramatic reductions in diarrheal deaths in the 1980s and 1990s (see box page 58).

In many ways ORT also revolutionized communication for child survival approaches. Traditional health education talks were replaced by consumer-focused product development, promotion, and training in appropriate *use*. Mass media campaigns as well as community outreach and traditional channels focused on actual skills development—demonstrating the possibility of changing child practices on a large scale.

In the last decade, however, the fall in deaths due to diarrheal disease has leveled off. Use of oral

³ John Murray and Robert Northrup, personal communication.

⁴ USAID 2004.

⁵ Bhutta et al. 1999.

⁶ Black 2003; USAID 2004.

⁷ Favin et al. 1999.

⁸ Curtis & Cairncross 2003. (This meta-analysis of handwashing interventions shows a 42–47 percent reduction in associated risk of diarrhea.)

⁹ Lancet (editorial) 1978.

PREVENTING DIARRHEA IN THE HOUSEHOLD AND COMMUNITY

Integrated diarrheal disease programs require four elements:

- Primary prevention of diarrhea
- Maintaining and increasing use rates for ORT
- Ensuring proper nutrition of healthy and ill children
- Promptly diagnosing and treating dysentery and persistent diarrhea

The primary element—*prevention*—is often left to environmental programs and includes both individual and community behaviors. Communities can construct latrines, maintain small water supply systems (e.g., protect village wells), treat the source of their water, and so forth. *Individual* prevention behaviors focus on home hygiene. Key practices include:

- Wash hands with soap at three occasions: after defecation or handling children's feces, before preparing food, and before eating or feeding children (including before breastfeeding)
- Dispose of feces in a latrine or toilet
- Use child-friendly latrines and/or potties for small children
- Store water in narrow-neck or covered containers
- Disinfect or filter water in the home (e.g., home chlorination)
- Protect food from insects and other pests

In addition to washing hands on key occasions, optimal handwashing consists of using proper techniques:

- Use running/falling water
- Use a cleansing agent (soap, ash, or mud)
- Rub hands (all over, at least three time)
- Shake them dry in the air or drying them on a clean cloth

Note: Prevention practices also include measles immunization.

Sources: USAID 2004; Favin et al. 1999.

rehydration therapy is only around 20 percent in countries with high child mortality.¹⁰ This reflects a drop in most countries even as more liberal indicators have been used. Issues are program-related, policy-related, product-related, and behavior-related.

FROM SUCCESS STORY TO NEW ADVOCACY AND BEHAVIORAL CHALLENGES

Control of diarrheal disease has suffered from both loss of funds and loss of focus. In the 1980s CDD was a highly visible vertical program supported by international donors. In many countries the program scaled up in a dramatic way, supported by intensive mass media and other communication efforts. ORT was quickly incorporated in national policies and protocols for all levels of the health system. Hospitals adopted ORS and created ORT corners. Community health workers (CHWs) were trained to distribute ORS and teach families how to use it. Communication programs put creative effort into package design, instructions, positioning, and branding of the product.

In 1995, CDD (along with ARI) was incorporated into the Integrated Management of Childhood Illness approach. This holistic algorithm integrates many aspects of diarrheal disease—the overlap with measles, with nutrition, and with malaria. However, facility-based health providers no longer receive the same intensive and practical training on treatment and counseling of diarrheal disease. And since the mid 1990s, attention given to the community component of CDD has dropped dramatically.

¹⁰ Jones et al. 2003.

EARLY COUNTRY EXPERIENCES CHANGING PRACTICES: WHAT MAKES A DIFFERENCE?

Egypt

A five-year national diarrheal disease project in Egypt included extensive formative research; production and distribution of branded ORS; training in ORT for physicians, pharmacists, nurses, and mothers; television, radio, and other public media to promote ORT nationally; and integration into the primary health care system. During the campaign researchers conducting surveys were asked so many questions that these were made into a series of 30-second TV spots called "Mothers Ask Doctors." From 1983 to 1984, knowledge about dehydration rose from 32 to 90 percent; knowledge of ORS rose from 1.5 to 96 percent nationwide; and 70 percent of recent cases of child diarrhea were treated with ORS. In a survey of 300 pharmacists nationwide, 98 percent reported that ORS was the leading sales product for diarrhea. During the same period, diarrhea-related mortality dropped by 50 percent.

Honduras

A USAID child survival project worked with the Ministry of Health to design and market a branded ORS product (Litrosol); train health workers and village outreach workers; and teach mothers ORT. The combined health worker, print, and radio promotion led to 60 percent trial of the new product among rural women between 1981 and 1983. During the same period diarrhea-related mortality in children dropped from 40 to 24 percent. Improvements in health practices were maintained or increased in the five years following the program. During a second

evaluation in 1987, virtually all mothers (99 percent) said they had heard of Litrosol and the great majority (85 percent) said they had used it at least once. Case treatment rates with Litrosol climbed from 34 to 49 percent.

Mexico

An analysis of mortality trends in Mexico demonstrated the importance of an integrated approach to diarrheal disease. The analysis looked at three stages of the diarrheal disease program beginning in 1978 and ending in 1993. Interventions during different stages included improvements in basic sanitation, measles vaccination, and promotion of ORT. A women's literacy campaign also took place during this time. Promotion of ORT began in 1984. A comprehensive social program included practical demonstrations and group and individual training, as well as activities in medical units, schools, and markets. By 1986, 47.5 percent of mothers were using ORT and 24.3 percent were using ORS. During stage II the proportion using ORT increased from 62.5 to 80.7 percent. ORS use rose from 22.5 to 41.9 percent. During each stage there was a reduction in mortality due to diarrheal disease, with the largest reduction in stage III (17.8 percent). The analysis concluded that literacy campaigns for women and promotion of ORT both played important roles in this reduction. However, the greatest reductions were correlated with the measles immunization campaign and improvements in sanitation.

Sources: Rasmuson et al. 1988; Seidel 1992; WHO 1996.

The current interest in zinc, and new joint WHO/UNICEF recommendations in 2004 on diarrhea management, provide valuable opportunities to renew much-needed focus on CDD. This is a crucial time for advocacy: for new *policies*, new *products*, and new attention to family and provider *practices*.

Communication strategies can contribute in significant ways to all of these areas. The next two sections look at the recommended behaviors for families and providers.

MANAGING DIARRHEA— RECOMMENDED FAMILY BEHAVIORS

Three Types of Diarrhea

Children suffer from three clinical types of diarrhea. These require different responses:¹¹

- Acute watery diarrhea
- Dysentery (bloody diarrhea)
- Persistent diarrhea (lasting more than 14 days)

Children in most countries have an average of five diarrhea episodes a year. The great majority of these fall into the first of the three categories. (Cholera also falls into this category.) Death from acute watery diarrhea is due to severe dehydration and can be prevented through rehydration and nutritional care.

About 10 percent of episodes have blood in the stool and require antibiotics. This category accounts for 20 percent of diarrheal deaths among children under five. Most are due to shigella.

About 45 percent of deaths are due to persistent diarrhea, or watery diarrhea that goes on for more than two weeks. Antibiotics are not effective. The mother needs nutrition counseling and must be attentive to feeding over a period of many days.

Key Family Practices

Most diarrhea can be managed at home and without drugs. Parents need to recognize danger signs and seek appropriate treatment.

Oral Rehydration Therapy (ORT)

ORT is a cluster of behaviors carried out over a period of days. Since ORS was first introduced, our understanding of what behaviors are most effective (and safe to promote in the home) has continued to

change. The definition of “ideal family practices” has therefore varied over time. Recommended practices also vary according to national policy. The WHO definition of home case management for diarrhea allows for flexibility:¹²

- Begin early use of available food-based fluids (except heavily salted soups or very sweet drinks) and/or give oral rehydration solution (ORS) if available and affordable
- Continue breastfeeding if the child is breastfed; give frequent and small amounts of food during diarrhea and continue with catch-up feeding for two weeks following the diarrhea episode
- Recognize danger signs of diarrhea that require immediate care and seek help from an appropriate provider
- Give zinc supplements (tablets or syrup) for 10-14 days

Each of these is really a series of practices. The first may include acquiring ORS and mixing it. Standard KAP surveys include a checking question to see if mothers who say they used ORS for a child’s diarrhea know how to mix it properly. Administering ORS may be defined in different programs as giving a liter of liquid in 24 hours or as giving a glass per stool as long as the child has diarrhea. It may take around four hours to give ORS by cup and spoon to a dehydrated child.

Giving food-based fluids (such as thin rice gruel) is now recognized as equally or even more effective than giving ORS (See also page 73). The standard indicator for correct home practice now allows for either.

Protocols regarding zinc will be introduced gradually. Messages to parents must be tailored according to availability (See also page 71).

¹¹ USAID 2004.

¹² USAID 2004; WHO/UNICEF 2004.

The trigger for a parent's action is watery stools. Parents should act quickly at the first sign of diarrhea.

Feeding

Continued feeding requires different skills (and often beliefs) *during* diarrhea and during *recuperation*.

Feeding is more complex and requires attention for a longer number of days than rehydration itself.

Attention to the child during recuperation is usually one of the weakest steps in the recommended behaviors. However, giving *frequent, small feeds* has a powerful effect on recovery, and is the *primary* treatment for persistent diarrhea, which is responsible for the largest number of diarrheal deaths.¹³

Danger Signs

Home management is central to caring for a child with diarrhea. But the family must also be able to recognize danger signs. They should seek care if the child:¹⁴

- Has visible blood in the stool
- Has diarrhea that continues for two weeks or more
- Vomits everything
- Is lethargic or not conscious
- Stops breastfeeding
- Stops eating or drinking

The first two danger signs are specific to diarrhea.

Research has shown that most mothers do recognize these major signs of severity and do seek help for them.

The other symptoms are more general signs of severe illness.

The Careseeking Quandary

Careseeking may at first seem less critical than in other interventions (e.g., for malaria and ARI where prompt

treatment seeking is the critical behavior). The fact that parents do recognize symptoms of severe diarrhea is also an advantage to communication programs. However, careseeking for diarrhea includes an important *proscription*. The mother should *not* purchase *antidiarrheals and antibiotics* for the child or give other harmful remedies. This is one of the most challenging family “practices.”

Few programs have directly targeted parents' *not giving drugs* for watery diarrhea. Antidiarrheals can be harmful (and can kill babies); antibiotics will not help most diarrhea and unnecessary use increases drug resistance. Other harmful practices are also common. Programs have had little success discouraging use of drugs. This is a primary communication challenge for provider practices as well. Although KAP surveys ask parents about treatment, key indicators for the intervention usually don't include *avoidance* of harmful practices. The scope of problems related to diarrheal disease practices is often not understood.

MANAGING DIARRHEA—PROVIDER BEHAVIORS

Assess the Child

Case management of diarrhea consists of the standard “assess the child, classify, treat, and refer.” The majority of community-based programs provide CHWs with ORS but not antibiotics for treatment of severe diarrhea. Countries will also begin introducing zinc supplements at the community level—either packaged with ORS or provided separately. Community workers (as well as facility-based providers) must be able to recognize signs of dehydration. These include:

- Sunken eyes
- Lethargy or unconsciousness

¹³ USAID 2004.

¹⁴ USAID 2004.

- Skin pinch goes back slowly or very slowly
- Not able to drink or drinks poorly
- Thirsty and drinks eagerly
- Restlessness/irritability
- Crying without tears (some programs)¹⁵

The CHW should also ask the mother how long the child has had diarrhea, whether there has been blood in the stool, and what other treatment she has given. If there is blood in the stool or if the child has had diarrhea longer than two weeks, the CHW should refer the child.

Counsel the Mother

The CHW may rehydrate the child or give the mother ORS packets. Counseling the mother is more complex than in many interventions and includes:

- How to mix ORS
- How to administer ORS (how much to give, how many days to give)
- What to do if the child vomits (wait for ten minutes and continue)
- How to feed the child during diarrhea (continue breastfeeding, give small frequent feeds and special foods)
- How to feed the child during recuperation (give extra foods for two weeks)
- Special local foods
- Local remedies that may be harmful
- Instructions on danger signs
- Instructions on how/how long to administer zinc (when available)

If the CHW gives the mother ORS, she or he should demonstrate how to mix it and check to make sure the mother understands how to both *mix* and *administer* it herself. Improperly mixed ORS can be harmful. Administration is also a challenge. If a food-based

recipe is recommended, the CHW should also explain how this is made and administered (See also page 65).

Counseling on feeding during illness and recuperation takes time and negotiation with the mother. CHWs should refer to specific local foods. This may be the most important provider practice and also the most difficult (See also page 67).

One important aspect of counseling is often not included in the “key practices.” The CHW is trained to caution the mother against “harmful local remedies.” But the most harmful practice may be inappropriate use of allopathic (western) medicines. This is a critical area for improvement in communication programs—perhaps most importantly for face-to-face counseling—because of the depth of resistance.

UNDERSTANDING BEHAVIORS, IMPROVING PROGRAMS

Analyze the Practices Behind the Indicators

Although CDD is one of the oldest child survival interventions, measuring key practices has become more rather than less challenging over time. The standard indicators for diarrheal disease have changed repeatedly (see box page 62). The ideal practice now includes a range of possible behaviors. Giving more liquids, or giving food-based fluids, is hard to gauge accurately from self-reports and many mothers now know the “correct” answer to give interviewers who ask about diarrhea. It is therefore difficult for programs to discuss current levels of “demand” and “use” and even more difficult to analyze trends from one survey to the next. Moreover, information has in some ways lost its value in diarrheal disease programs. According to one WHO report, “as the survey instruments became more complex, they were less easy to use and therefore less

¹⁵ WHO no longer includes this symptom because it has poor sensitivity and specificity. (WHO/UNICEF 2004)

THE CHALLENGES OF CHANGING INDICATORS

The definition and the indicator for home management of diarrhea have shifted every few years. Improved understanding about what constitutes safe and proper treatment and concern about availability of packaged ORS have both been responsible for these shifts.

What is the Ideal Practice? In 1981 the standard indicator was treatment of a recent case of diarrhea with packaged ORS. In 1985 the indicator shifted to “oral rehydration *therapy*” and was defined as “use of ORS or home made sugar/salt solution.” By 1986, treatment was expanded to include “recommended home fluids” (but not sugar-salt-solution). In 1988, “ORS use” was replaced by “correct case management,” which included giving increased fluids and continued feeding. In 1991, the emphasis turned to an increased amount of fluids. Since 1993, ORT has been defined as “increased fluids and continued feeding.” According to this liberal indicator worldwide coverage in 2003 was 21 percent.

What Can the Data Tell Us? These changes have made it difficult for programs to compare “use” over time. This is a major challenge for efforts to reduce diarrheal disease. However, it is clear that rates are extremely low compared to prevalence of ORS and ORT use achieved during many of the early country programs (see box page 58).

More detailed indicators that reflect key behaviors (both positive ones and harmful ones) are necessary for advocacy purposes and for use at the local level so that communities can understand problems and track progress.

Sources: WHO 1999; Dobe 2003.

likely to be used...The value of targets and indicators for program planning, as well as for motivating health personnel was questioned.”¹⁶ Even though quantitative surveys about treatment and careseeking for diarrhea have become increasingly complicated, they usually do not capture whether behaviors are adequate or whether harmful ones predominate.

Lack of good data is a major problem for program planning and also for program advocacy. Making an evidence-based case for both is now a critical task for communication experts.

State the Problem, Address the Problem

Qualitative research is especially important at this time to understand what mothers are really doing and why. Targeted formative research should help identify home treatment and careseeking trends, major barriers for different population segments, and lay the basis for program improvements. In many countries, diarrheal disease practices have not been looked at by behavioral experts in more than a decade.

At the local level, programs need indicators that are meaningful in terms of their own specific challenges. In one area a major target might be reduced purchase of antidiarrheals. In another it might be specific recuperation behaviors. In another it might be accurate mixing and administration of ORS. In another, it might be use of a fortified food-based fluid during the first 24 hours of illness.

When zinc supplements are introduced programs should monitor not only *who* acquires them and *where*, but whether caretakers *complete* the full 10-14 days of treatment. Another important question

¹⁶ USAID 1999.

will be whether use of zinc *displaces* any current practices (whether beneficial or harmful).

According to a recent analysis of DHS data from 38 countries, between 34 and 96 percent of the poorest children are taken to private providers for treatment of diarrhea (see also page 71).¹⁷ A number of programs in earlier years studied how to influence the practices of various popular providers. Such efforts may now need to be the *priority*. When mothers go to these providers, what advice do they get and what do they purchase? Is ORS really what they want or is the competition “winning”? (And how does the availability of zinc supplements, and/or packaging with zinc, affect the status of ORS?) This is a critical time to reassess how ORS, and ORT, are positioned *vis a vis* the competition.

Finally programs need to understand where and how many ORS packets are available. Few CDD programs ever reached scale despite the increasingly large quantities of ORS produced. It is important to know who is most vulnerable and who does and does not have access to the “gold standard.” What providers have packets and whom do they serve? How many packets do they give clients and is that adequate? Product quality is a part of this question. WHO now recommends a reduced osmolarity formula for ORS. Do available packets conform to the WHO standards? Any program that promotes use of packets should be able to answer these questions (see also page 73).

Reinvigorate Community and Provider Programs

Deaths due to diarrheal disease are unacceptable given the affordability and effectiveness of ORT and the potential impact of hygiene behaviors. We know ORS is not a simple product and ORT is a complex

behavior. Early programs taught much about the knowledge-behavior gap and the difference between trying ORS once and preferring it to other treatments. Many knotty problems have resisted 20 years of product branding. Nutrition-related messages never received adequate attention. Community problem solving has been hampered by the artificial split between health, nutrition, and environmental programs. We know enough to address all of these challenges, but it means re-thinking approaches.

As national attention is drawn to the challenges of introducing zinc, it will be crucial for programs to use the promise of this new product as an opportunity for, rather than a distraction from, focusing on the *cluster* of behaviors that can reduce mortality.

BUILDING ON THE COMMUNITY'S PERSPECTIVE

How Mothers Understand Diarrhea and Dehydration

It might seem that diarrhea is an easy condition to identify and talk about. But for some hard-to-reach populations, in particular, this is not the case. Ethnographic research can help decipher local taxonomies that ascribe different kinds of diarrhea to different causes, and group them under different illnesses. Symptoms of dehydration may be linked with “diarrheal diseases” or with illnesses that are chiefly associated with other symptoms. Many communication programs have demonstrated the importance of using local terms and specifically mentioning all diseases associated with dehydration (see box page 64).

Parents may think some illnesses are amenable to allopathic or western medicines and others require traditional remedies. Often a mother will go to several providers in succession. Programs need to understand

¹⁷ Bustreo 2003.

TRANSLATING SYMPTOMS AND ILLNESSES

Honduras Research showed mothers were not using ORS for *empacho*, a kind of diarrhea accompanied by cramps and a hardening of the stomach. They considered it distinct from other kinds of diarrheas. After the first radio broadcasts promoting the new ORS product Litrosol, monitoring showed mothers were not using ORS for cases they considered *empacho*—approximately one third of child episodes. When asked why, they said "because you didn't say it was good for *empacho*."

The Democratic Republic of Congo

Mothers named at least six diseases accompanied by frequent and loose stools. One of these, *lukunga*, is similar to diarrhea with dehydration. However, mothers were primarily concerned about the sunken fontanelle associated with *lukunga* and treated it by rubbing a traditional remedy on the fontanelle or palate. Initial research showed that about 50 percent of children with simple diarrhea were receiving some form of rehydration, but only about 13 percent of those with *lukunga* did. It was important for messages to specifically connect *lukunga* with the need for rehydration.

Swaziland Mothers view some kinds of diarrhea as resulting from a baby's inhaling smoke or invisible vapors belonging to those of another clan. To treat this a traditional healer exposes the child to fumes from burning

medicines "belonging to" the child's own clan and also purges the child with an enema. The program was able to promote rehydration therapy as a way of "restoring balance" to the system but tackled the problem of purges and enemas through person-to-person messages. The strategy included both healers and community volunteers.

Bangladesh Using the correct terminology in survey questions is particularly important. In Bangladesh, the local population called only one of four common types of diarrhea "daeria" (severe watery diarrhea or cholera). These cases represented only 5 percent of episodes. When surveyors asked people about how they treated childhood "daeria," responses therefore only covered this small subset of episodes.

Philippines In the initial years of the diarrheal disease program in the Philippines, researchers found that mothers had no concept and no local terms for dehydration *per se*. To provide a basis for the importance of rehydrating a child, they created actual characters representing diarrhea and dehydration complete with voices and personalities and let them tell their own story on the radio and in animated television spots.

Sources: Rasumson et al. 1988; HEALTHCOM 1985; Seidel 1993; Nichter 1991.

who these providers are and what they prescribe. Common harmful practices include purges and enemas and withholding food. Research can also identify local practices that are helpful and include these in program messages. Many early programs looked at the practices of traditional providers. Identifying the typical range of sources for antidiarrheals and antibiotics is also critical.

Messages must include *cues for severity*. Some researchers believe programs have not looked closely

enough at careseeking for dysentery, which is responsible for 20 percent of diarrheal deaths and in some contexts much more (see box page 65). Most mothers do recognize bloody diarrhea as a sign of severity. However communication programs usually focus on the problem of dehydration and promote ORT rather than prompt careseeking for specific danger signs. In some communities, bloody diarrhea is the most feared childhood illness; but in others,

diarrhea with vomiting is considered more serious. In communities that have experienced cholera, families as well as providers may only worry about acute watery diarrhea. Assessments of provider practices have usually shown they have difficulty interpreting signs of severity.

Communication experts should always keep in mind that there are three kinds of diarrhea and message emphasis should be tailored to the epidemiology as well as the local ethnography.

In most cultures the mother is responsible for noticing the child has diarrhea and for seeking care. (In some cultures certain kinds of diarrhea are also considered her fault.) This may be true only for certain illnesses in the diarrhea taxonomy, however. Fathers may become involved in the more serious kinds of illness. In Swaziland, the father must consult ancestors to find out how to treat some illnesses thought to involve evil spirits. Older children can sometimes be powerful partners in sharing appropriate messages, especially now that ORS is well known. An older child is often responsible for taking care of younger siblings in a family.

“Use” and “Correct Use” of ORS

Mixing ORS

Programs that promote packaged ORS must also teach correct use. *Skills* are essential. ORS mixed with the wrong quantity of water can be ineffective (if too dilute) and dangerous (if too strong). Direct observation of mothers is necessary to determine whether and what kinds of errors they might be making. Research has shown that many mothers who say they know how to mix ORS in fact don't.

A recent study in Maharashtra, India, found that 90.7 percent of mothers were aware of ORS and 60 percent said they gave it to their children. However only one-third prepared it correctly.¹⁸ In Bangladesh, a

¹⁸ Datta et al. 2001.

DYSENTERY IS DIFFERENT

Dysentery accounts for about 20 percent of diarrheal deaths but has received little attention in terms of ethnographic research or message analysis. Most communication messages have aimed at promoting ORT. However, dysentery requires prompt careseeking and antibiotics.

Many providers fail to discriminate among different kinds of diarrhea. They look for signs of dehydration, vomiting, and fever, but often forget to ask about blood in the stool. Communicating about dysentery also requires understanding local disease names.

Sri Lanka Antibiotics are thought of as drying and heating agents and therefore suitable for treating watery diarrhea. However, antibiotics are thought to aggravate dysentery, which is associated with excessive and trapped heat. Research showed some families have learned to manipulate providers, claiming a child has bloody diarrhea in order to receive antibiotics.

Bangladesh Dysentery accounts for nearly one half of diarrhea episodes linked to measles. However, many families consider this purging a necessary way for heat to leave the body. A number of cultures think it is dangerous to interfere with the healing process of measles. Special messages may be necessary to address diarrhea associated with measles.

Dysentery and Taboos In many cultures the presence of blood or mucus is thought of as a sign of evil or bad luck rather than an illness—and therefore requires an exorcist. In some families, the mother is also reluctant to admit the presence of blood because of this connection.

Source: Nichter 1991.

district-wide study in 1996 found that 33.3 percent of mothers could demonstrate how to mix ORS properly; 56.4 percent said they could mix it but did so incorrectly. (The rest said they did not know how.)¹⁹ In this study the most important determinant of correct mixing was that mothers had seen a *demonstration*. Programs that want to improve mixing skills must find ways for mothers to *observe* and *practice*.

Instructional materials (such as mixing flyers distributed with the product) must be carefully pretested. A recent program in Srinagar found that only 17.7 percent of mothers could describe how to prepare ORS even after they read the accompanying instructions.²⁰ Early programs put great effort into the design of mixing instructions. Radio programs promoted correct mixing and community level contests gave mothers the chance to see demonstrations and gain confidence. These programs also demonstrated that mothers go through phases of “learning and forgetting” and that the task of teaching skills, even for a well-known product, is an ongoing one.²¹

Administering ORS

ORS is unlike any other medicine because of the volume and time required for administration. Rehydration takes an average of four hours. However mothers are apt to use ORS like more familiar medicines—perhaps a few spoons at a time. A study in Zambia found that no child received more than 15 ml (a few spoonfuls) over the first 24 hours, and 65 percent of mothers stopped completely if the child vomited.²² A seven-country study in 1994 found that a

majority of children received at least a glass (200-230 ml) on the first day but few received more than that.²³ Only one standard ORS package included instructions on *volume*: In Ecuador, the package came with a plastic mixing bag that helped mothers measure a liter of water. Pictorial instructions were printed on the bag.

Country policies differ. In some the norm is to give one cup of ORS after each stool. In others, the policy is to give a liter over a period of 24 hours. The policy may also vary for different ages, making messages difficult. However, messages should always emphasize the concept of giving a certain *volume* to the child and to continue giving it *slowly* and *continuously* even if the child vomits.

Duration of Therapy

The average episode of diarrhea lasts five days. Depending on severity, a child may need ORS for several days. Community-based programs that distribute ORS can promote the idea that children need *continued attention* by giving parents several packages. (WHO recommends at least two.²⁴) Communication programs should promote the idea of caring for the child patiently over several days. This can be difficult for a mother. Caring for a child with diarrhea requires attention *from the family*. Communication strategies should consider how messages can tackle this barrier and how families can be encouraged to provide this care. *Taking the time* to give attention to the child is as, or more important, than the rehydration product given.

19 Ahmed et al. 2000.

20 Rishi et al. 2003.

21 McDivitt et al. 1994.

22 Ng'andu & Kowane 1988.

23 McDivitt et al. 1994.

24 WHO/UNICEF 2004.

Considerations for Food-based ORT

Proper administration of *food-based* ORT can be less challenging than for packaged ORS, perhaps because the product seems less like a medicine.

There have been few large trials of food-based recipes. However, one study in Ethiopia showed mothers were much more willing to give a cereal-based mixture over 96 hours than the packaged product, and they made only minor errors in preparing the recipe.²⁵

Whatever product or recipe is promoted, behavioral studies are required to understand how mothers perceive, prepare, and administer it.

Feeding During and After Illness

Nutrition is a key factor in diarrheal disease and feeding messages almost consistently do not get the careful analysis they need or sufficient emphasis. It is difficult to get the messages right and even more challenging to deliver them effectively. Feeding messages need to be carefully designed and pretested (see box at right.)

Mothers may find it counterintuitive to feed children during diarrhea—just as many find it illogical to give liquids when this obviously increases stool output. In some communities caretakers withhold food, breastmilk, or animal milk during diarrhea. Children also have little or no appetite when they are ill.

The optimal behavior is many small, frequent feeds during illness followed by additional food (or “catch-up feeding”) during

THE MANY CHALLENGES OF FEEDING MESSAGES

A USAID program in The Gambia (1981-84) addressed the problem of wasting—one of the worrisome aspects of chronic diarrhea in the rainy season. It found “feeding” messages much more difficult to convey than messages about rehydration. Non-literate mothers who had no access to ORS were able to learn and give the recipe for a home-mixed water-sugar-salt solution (SSS), but did not adopt simple nutrition changes during a child’s illness.

After the first year, 66 percent of rural women interviewed could recite the formula for SSS and 47 percent reported using it. But only 21 percent had adopted the “give solid foods during and after diarrhea” messages.

Revised Messages In the second year, the communication program emphasized feeding messages. It made them more specific and differentiated between feeding during illness and during recuperation. The new messages acknowledged the difficulty of feeding solid foods when children have no appetite. They focused on giving small, frequent feeds. Messages also highlighted specific energy-rich local dishes and advised adding a few simple ingredients to increase calories and protein. Solid foods were promoted as a source of “power” and weight gain. The program developed a slogan for radio programs and graphic materials: “When your baby is recovering from diarrhea, give him solid foods to restore his power!” Print materials for oral rehydration were revised so that they always included feeding messages.

New Results After disseminating the second-year messages, the number of children *not fed* solids or liquids dropped from 31 percent to 10-16.7 percent. During the following year, nearly all children (92.4 - 97.8 percent) were given solid foods or supplemental liquids.

Source: Rasmuson et al. 1990.

²⁵ Kassaye et al. 1994.

recuperation. As with oral rehydration therapy, the key is *attention* to the child and patience over a period of days. The time required to feed such a child can be a barrier, as well as local beliefs about treatment. Again, messages to the *family* are important. Everyone needs to pay attention to the child.

Special Foods

Research can identify foods families consider appropriate for children and devise small changes to fortify them. Fats and oils provide more energy and are most easily absorbed during diarrhea. Some foods also *reduce stool output and duration*. This benefit should be mentioned to mothers because it is what they value most. A study in Bangladesh compared children fed a rice-based diet cooked with either green bananas or pectin. After three days, 59 percent of those given the banana recipe had recovered as had 55 percent of those fed the pectin recipe, in contrast to only 15 percent of those fed just the rice. The banana and pectin diets also significantly reduced the amount of stool and vomiting.²⁶ Often the most effective foods turn out to be traditional ones. In Pakistan, *khitchri*, a common weaning food of rice, lentils, and cottonseed oil, led to quicker improvement in children's conditions.²⁷

Providers and Prescriptions

Counseling on feeding is difficult. Good counseling means negotiating with mothers

²⁶ Rabbani et al. 2002.

²⁷ Shaikh et al. 1991.

CHANGES OVER THE YEARS IN RECOMMENDED FEEDING PRACTICES

Recommendations regarding feeding during and after diarrhea have changed many times since the early 1980s. This has complicated the counseling process. Changes have focused particularly on whether and how to give children milk. Messages have included:

- 1980** Give extra breast milk or other fluids until the diarrhea stops and continue normal feeding.
- 1987** Give breast milk or milk feeds with twice the usual amount of water; give one extra meal each day for a week.
- 1990** Dilute breastmilk for children under six months, but not for infants over six months. Offer food at least six times a day.
- 1992** The message to dilute milk was dropped.

Current Recommendations

Feeding during and after diarrhea

- Give the child plenty of food to prevent malnutrition.
- Continue to breastfeed frequently.
- If the child is not breastfed, give the usual milk.
- If the child is six months or older or already taking solid foods, also give cereal or another starchy food mixed if possible with pulses, vegetables, and meat or fish. Add one or two teaspoonfuls of vegetable oil to each serving.
- Encourage the child to eat; offer food at least six times a day.
- Give the same foods after diarrhea stops and give an extra meal each day for two weeks.

For persistent diarrhea

- Dilute any animal milk with an equal volume of water or replace it with a fermented milk product such as yogurt.
- Assure full energy intake by giving six meals a day of thick cereal and added oil, mixed with vegetables, pulses, meat or fish.
- Bring the child back in five days; if the diarrhea has not stopped refer to hospital.

about what they might be able to do. Communication also takes time and patience. Providers need training and practice and good job aids. Providers may not be convinced feeding messages are wise or important. Even the medical profession used to believe it was important to “rest the gut” during diarrhea. WHO’s guidelines have evolved over the years and some providers may be confused (see box page 68).

One tool communication experts can design to draw attention to feeding is a “prescription” for special foods. Filling out a prescription raises the importance of feeding behaviors in the eyes of both provider and mother. Particularly if the slip includes simple pictures, it can facilitate counseling, serve as a reminder to the mother, and also empower her at home. (See Chapter 7 on Nutrition for further discussion of feeding during and after illness.)

WHAT DO MOTHERS REALLY WANT?—FACING THE COMPETITION

ORS and ORT face stiff competition. What most mothers want is to stop the child’s diarrhea. Rehydrating a child may save its life but will not stop the diarrhea. Even when mothers who use ORS are asked what they like about it, they often claim it “stopped the diarrhea,” although ORS does not.²⁸

Research shows other allopathic products including antidiarrheals and antibiotics are almost consistently given to children more often than ORS. An all-India survey in 1998-99 found that more than twice as many mothers gave their children with diarrhea “pills and syrups” as gave ORS, and 58 percent gave less fluid during diarrhea. Even mothers who visit a facility are

often not satisfied if they don’t receive the “right” medicine. A 1999 study in Bangladesh followed children who were treated in the ORT corner of a hospital and found that 31.2 percent of mothers then went to private doctors; 96.3 percent of them received other medications. Treatment by “ORS only” was the reason given by most mothers for going elsewhere.²⁹

Communication strategies often focus on what is good about ORS and position it as closely as possible to something mothers are already familiar with—for example, as a tonic in Honduras, or a serum in Mexico.³⁰ But in reality, ORS is a new treatment model for mothers and positioning it as a medicine can backfire (as we saw in the discussion on volume of ORS given by mothers). Research has shown that mothers who understand the *concept of rehydration* are more apt to carry out ORT.³¹ This may seem obvious. However communication experts usually try to position behaviors in terms of what mothers already value. ORT *does* require appreciating the mechanism of *illness and recovery*. To some extent, it also requires putting aside what parents want most.

New message strategies are needed. When zinc is widely available, promotional efforts can position the supplements as a product to reduce *duration and severity*—exactly what mothers want. However, ORT and messages to continue feeding will remain key, whether or not a program promotes zinc. The impact of new messages (e.g., promoting the antidiarrheal benefits of zinc) on these primary behaviors must be carefully monitored in order to prevent any unintended effects.

Any message strategy must be *integrated*. One commonality between zinc supplements and optimal

²⁸ Touchette et al. 1994.

²⁹ Ahmed et al. 1999.

³⁰ Rasmuson et al. 1988; Seidel 1993.

³¹ McDivitt 1994.

feeding behaviors is the importance of extended care (i.e., two weeks). Attention during recuperation has always been a challenge. Zinc provides communication experts new impetus to focus on an important *time period* and the concept of *continued attention* in order to restore a child's strength and prevent future illness.

SUPPORTING PUBLIC AND COMMUNITY PROVIDERS

Training and Job Aids

The provider's role includes teaching the mother skills, negotiating several challenging practices that she may have trouble with or resist, and recognizing/teaching danger signs.

Providers have little time to counsel mothers, so efforts to improve what they do should be carefully tailored. In areas where package use is common or promoted, CHWs and facility workers should teach mothers how to mix ORS or the local food-based recipe. Counseling should include a *demonstration* and *checking questions*. Counseling on zinc will require explanation of the importance of *completing* the 10-14 days of supplements. Supportive training should include practice and role playing.

Other key areas for training include:

- How to negotiate feeding practices with mothers
- How to negotiate not giving harmful remedies (including diarrheals)
- How to encourage the mother
- How to recognize danger signs
- How/how long to give zinc supplements (when available)

Most providers do not recognize symptoms of severity and most do not remember to tell mothers to return if the child does not get better.

Revised job aids—simple recipe cards, prescription pads, counseling cards, message guidelines, and Q&As about different remedies—can be helpful even for those

workers who cannot be retrained in-depth. Joint workshops and briefings with supervisors to introduce these “technical updates” can clarify questions. Updates to introduce zinc should be used as an opportunity to re-introduce the importance (and strategies for promoting) other difficult behaviors—e.g., mixing and administering ORS and feeding practices.

Supervision and the Referral Process

Given the weakness of most supervisory systems, updating the supervision checklist with priorities is a simple place to start. Supervision should include direct observation so the provider can get feedback on skills. The supervisor should check whether and how the provider asked the mother about symptoms of severity (in particular blood in the stool); counseled the mother on how to feed the child and on avoiding harmful practices; demonstrated or observed mixing of ORS (if available); encouraged the mother; and told her to return if the child doesn't recover.

Supervision should focus on joint problem-solving. What are the common problem practices, and how can these best be handled in counseling? Many CHWs have difficulty identifying severe cases that may require referral. This is likely to be an important focus of supervision.

As discussed more fully in the chapters on Malaria and ARI, referral is typically a challenging practice for both caretaker and provider. Forms for both *referral* and *counter referral* are essential to support the mother in seeking care, and the CHW in following up after she returns from the facility.

PARTNERING WITH PRIVATE PROVIDERS

In 1993, one diarrheal disease expert asserted that “a major thrust, perhaps even the majority of CDD efforts in the 1990s will be focused on influencing the

private practitioner.”³² Obviously this did not come to pass; but more than a decade later, the reasons are even more pressing.

What Are Their Practices?

According to a 2003 analysis of DHS surveys, over 90 percent of most recent cases of diarrhea among the poorest children were treated by private practitioners in countries as diverse as India, Mali, Haiti, Nepal, and Burkina Faso.³³ Even patients with little money prefer the private sector for many reasons—including convenience as well as the attention they receive. Although treatments vary among different providers, ORS is almost universally among the last ones offered for diarrhea.³⁴ Few providers ask about signs of severity (e.g., blood in the stool or duration of the diarrhea). Although antibiotics are often prescribed, a five-country study showed that “popular” private providers treated less than 50 percent of dysentery with antibiotics.³⁵

A range of factors may underlie what prescribers recommend to parents. Knowledge of correct treatment is of course one of them. Patient (or parent) expectations also clearly affect what they are given. ORS is a cheap product and there is little profit to be made from it. It also suffers from a low status. When private doctors in Karachi were asked why they gave patients antidiarrheals, 45 percent claimed they were efficacious and 80 percent said parents would not accept ORS as the sole treatment.³⁶ In Thailand, a

survey of doctors treating poor patients reported they could not give “only ORS” to parents who traveled for more than an hour to receive help for a child.³⁷

Research, including using mystery clients and verbal case reviews with parents, is necessary to understand dispensing practices. Not surprisingly, providers who are familiar with WHO protocols often report they tell clients one thing but actually do another. In a study in Kenya, 66 percent of pharmacy attendants reported they sold ORS for a previous case of diarrhea but only 33 percent actually had. In Indonesia, 53 percent said they prescribed ORS but only 5 percent of mystery clients received ORS.³⁸

How Can They Be Influenced?

Programs have influenced private providers through incentives, regulations, and training of various kinds. Some countries, such as Uganda, have adopted national strategies for partnering with private practitioners. Official government strategies often include regulatory approaches (for practitioners as well as drugs) and accreditation processes. Working with *licensed* and *unlicensed* providers present different challenges.

Existing channels are best for reaching any kind of provider. Licensed providers can be reached through professional associations. The Indian medical association trained around 35,000 doctors in the early 1990s through a cascading system of doctors teaching doctors. Prescriptions for ORS rose from 25-35 percent of cases to over 75 percent after the training, which

³² Northrup 1993.

³³ Bustreo 2003.

³⁴ Northrup 1993.

³⁵ Mahuri et al. 1996.

³⁶ Nizami et al. 1996.

³⁷ Howteerakul et al. 2003.

³⁸ Ross-Degnan et al. 1996.

included a video and practice in an ORT training unit.³⁹ The Philippines Pediatric Association conducted seminars and created a mail order home study package. Traditional practitioners may also belong to associations—such as Hakims in Pakistan and Ayurvedic physicians in India. Professional groups can be used for contacting providers and conducting training.

WHO has developed a methodology for surveying and training owners of drug outlets. The manual describes a one- to two-day training that was piloted in Kenya and Indonesia.⁴⁰ The training focused on improving knowledge and included pamphlets, a wall poster for customers, and group sessions with role playing. Following training, ORS sales increased 21 percent in intervention pharmacies in Indonesia and 30 percent in Kenya compared to controls; sales of antidiarrheals decreased by 20 percent in Indonesia and 15 percent in Kenya compared to controls.

USAID's PRITECH and BASICS projects worked on a methodology known as INFECTOM which includes training but also *negotiation* of changes in practices among practitioners—both licensed and unlicensed.⁴¹ The provider agrees to specific changes that he or she finds feasible and will have an impact on mortality (see box page 72).

Drug detailers and distribution systems reach many providers who do not belong to professional associations. Some ORS promotional programs have worked directly with manufacturers. In Indonesia, ORS manufacturers collaborated in producing point-of-sale materials for drug shops. A radio campaign promoting ORS use specifically directed parents to drug shops, leading to a substantial

NEGOTIATING PRACTICES WITH PRIVATE PRACTITIONERS

Negotiation of health practices is a personalized approach to behavior change that has been tried successfully with many audiences and health interventions. The INFECTOM negotiation approach was developed to influence private practitioners.

In Pakistan, a pilot INFECTOM project began with verbal case reviews among mothers who had visited private practitioners for treatment of their children's diarrhea or other diseases. The data were used to build provider-specific behavior profiles. Practitioners were then invited to a meeting to "review" IMCI-related treatments and discuss their own practices. Ten general practices were highlighted for change. Each participant was asked to sign a contract committing to making specific changes in his/her own practices to conform more closely to the "ideals." The average provider selected two of the practices. Over the course of the next ten months all of the participants were contacted three times to review progress.

Prescriptions of ORS rose from 55 to 81 percent and counseling about home treatment increased from 32 to 70 percent following training. Prescriptions of antidiarrheals did not change significantly however. The process was more effective with the more qualified practitioners.

The evaluation concluded that brief one-to-one visits and highly targeted messages is an effective way to influence private practitioners, but it requires substantial inputs of time and sound technical understanding.

Source: Luby et al. 2002.

³⁹ Northrup 1993.

⁴⁰ Ross-Degnan et al. 1996.

⁴¹ Luby et al. 2002.

increase in sales. Some companies have also agreed to include feeding instructions in their drug detailing. Expanded product lines for ORS also support sales—a high-end product can help ensure adequate profits to offset sales of the cheaper ones.

The introduction of zinc supplements will also provide valuable opportunities to communicate and collaborate with private providers. “Technical updates” on new products and protocols should be used to discuss a range of key diarrheal-related treatment practices.

Governments may be reluctant to deal directly with *unlicensed practitioners* or appear to support them. Traditional healers who do not belong to associations and are not linked to any commodity distribution system can be particularly hard to reach. In Nepal in the 1980s, UNICEF worked with healers (Dhamis or Jankris) to disseminate the local recipe for water-sugar-salt solution. Retiring Gurkhas were enlisted to train the healers, each of whom was estimated to visit eight to 12 families every day during the rainy season.⁴² In South India, village health workers have been encouraged to work with traditional healers. Some healers distribute ORS packets.

Monitoring and market surveys, and collaboration with manufacturers whenever possible to learn the results of their own monitoring of product sales, is important to help understand the effect of interventions with private providers and how long that effect is sustained.

LAUNCHING THE NEW PRODUCT

Introducing zinc therapy for diarrhea will require that governments adopt new *policies and protocols*. Communication experts can assist with the essential

advocacy efforts. Both the peer review studies showing efficacy of zinc supplements, and WHO’s new recommendations, provide a strong basis for these changes. Technical updates (for example, as a follow up to the 2004 IZINACG Symposium) can be used to prompt national policy reviews.

The *production and packaging* of zinc will require strong public-private partnerships. Collaboration often benefits from a third-party “catalyst” who understands the motivations of both partners and the obstacles they face in working together.⁴³ Other child survival programs (malaria and ARI) have shown that *pre-packed* medicines have been key to compliance with drug regimens, particularly when distributed as part of CHW programs (see page 96). However, pre-packing of an extended treatment course (such as zinc) *with ORS* (which is only given for one to three days) is a new model and will require extensive market tests with different populations. The new product will also require clear instructions. Experts with experience designing materials for non-literate groups should create these inserts/labels, and pretesting is essential.

Classic *social marketing* approaches that build on consumers’ needs and perspectives can help position the new product. Communication experts can contribute to formative research regarding consumer attitudes to the new product, analyze key benefits and barriers to use (and purchase), determine the most promising “niche,” and design strategies to support compliance. Staying abreast of lessons from other countries where the product is being tested will provide a good starting point for investigation. Experts anticipate that giving the *full course* of zinc therapy will be a challenge for families—particularly the idea of giving a “drug” once the child is no longer ill. On the other hand, in countries where zinc tablets or syrup

⁴² McBean 1998.

⁴³ Saade et al. 2001.

have been tested, ORS use rates have increased quite significantly. Mothers are apparently pleased to have a “drug” and are less likely to seek antibiotics and antidiarrheals.⁴⁴

Duration of treatment is not as crucial as with an antibiotic (where antimicrobial resistance is an issue). However, some nutritionists are worried about the potential “medicalization” of diarrhea treatment. There is a possibility that zinc may distract policy-makers, providers, and families from the important and difficult *food* issues associated with CDD.⁴⁵

Provider and prescriber perspectives are crucial. An integrated promotional strategy should consider both the *supply* and *demand* sides of the equation. Communication experts can work with manufacturers to plan product detailing to private suppliers and other promotional materials, as well as Q&As and other job aides for providers.

As mentioned earlier, monitoring should look at intended as well as *unintended* effects of the product launch both where zinc is available, and where it is not.

“REPOSITIONING” ORS AND ORT IN THE NEW ERA

Interest in improving packaged ORS to make it more effective and also more pleasing to customers has always been high. In 2002, WHO began to officially recommend a reduced osmolarity formula (also called “super ORS”) that reduces both stool output and

vomiting in comparison to the standard formula.⁴⁶ Studies have shown that adding zinc to ORS can also reduce the duration of episodes as well as stool output.⁴⁷ To date, Egypt and a few other countries have been producing and marketing such a product. However, WHO does not recommend an ORS-plus-zinc product because the quantity of micronutrient delivered is likely to be either too little or too great.⁴⁸

There are other opportunities both to improve the product and increase its appeal to consumers—many of which have been tried by the private sector. Rice-based ORS reduces stool volume as well as duration. The effect is twice as great in children with severe diarrhea (such as patients with cholera). Average reduction in total stool output for acute non-cholera diarrhea may be about 30-35 percent.⁴⁹

Rice-based ORS has been largely abandoned because of packaging issues. The product takes up more volume so packaging was more expensive, tripling the price. To keep the package size manageable, doses were produced for 500 ml rather than a liter. WHO was concerned this would be confusing to programs and populations.⁵⁰

Taste preferences vary by region. Orange flavor is popular in some countries; coconut is preferred in Southeast Asia. Thai doctors prescribe the non-WHO formula of ORS that contains coconut because they insist the salty taste is otherwise not acceptable to Thai children.⁵¹ WHO at one time expressed concern that

⁴⁴ Oliver Fontaine, personal communication.

⁴⁵ Elenore Seumo, personal communication.

⁴⁶ Han et al. 2002.

⁴⁷ Al-Sonboli et al. 2003.

⁴⁸ In addition, the positive effect of offering a mother something that looks like a “drug” would be lost. (Olivier Fontaine, personal communication)

⁴⁹ WHO 1990.

⁵⁰ UNICEF/WHO accessed October 6, 2003.

⁵¹ Howteerakul et al. 2003.

flavoring might make children drink too much ORS and that the agents might cause allergic reactions. However commercial ORS products are currently allowed to use flavoring.⁵²

Identification and promotion of *local food-based recipes* that have superior qualities is also important (see also the discussion on dietary management of diarrhea on page 143) Studies of ORT based on staple foods (maize, millet, wheat, sorghum, rice, and potato) have shown substantial reduction in stool output compared with the standard ORS product.⁵³ These recipes also have the advantage of providing nutrition during the immediate period of rehydration.

The “branding” and repositioning of both improved packaged ORS and local recipes that can address some of mothers’ desires—in particular reduced duration of diarrhea—is a task for both large-scale communication programs and community-level behavior change efforts which may have more opportunities to promote local recipes. Particularly as zinc supplements become available, but also in areas where the populations will not have access to this new “gold standard,” behavioral strategies must offer an integrated approach that strengthens the *cluster of behaviors* we know can reduce diarrheal disease mortality—rather than isolated practices.

⁵² UNICEF/WHO accessed October 6, 2003

⁵³ Molla et al. 1989.

Summary

Diarrheal Disease

Treatment. Behavior change approaches focus on prevention of dehydration (through oral rehydration therapy), feeding practices during illness and recuperation, zinc supplementation (which also prevents recurrence of illness) and treatment of severe disease. Dysentery requires treatment with antibiotics; persistent diarrhea requires special feeding behaviors.

Prevention. Exclusive breastfeeding up to six months and continued breastfeeding thereafter provides significant protection. Adequate and hygienic feeding practices help prevent infection and the cycle of malnutrition and illness. Immunization against measles reduces both morbidity and mortality from diarrhea. The primary prevention behaviors are environmental and include appropriate handwashing, use of latrines, appropriate home water storage and disinfection, and community practices to protect water. Collaboration between CDD, nutrition, and hygiene programs is important to prevent diarrheal deaths.

TREATMENT

Audiences and Actions in a Nutshell

Policymakers

- Increase attention to this major cause of mortality
- Support policies and strategies that will improve program effectiveness, including:
 - Adopting new zinc supplementation protocols and launching new products

- Integrating CDD, nutrition, and hygiene efforts
- Collaborating with the private sector (providers, drug sellers, manufacturers)

Families

- For simple diarrhea, give home-based fluids or ORS
- Continue breastfeeding if the child is breastfed; give frequent and small amounts of food
- Give adequate attention to the child during recuperation; continue with catch-up feeding
- Recognize signs of severity and seek appropriate help promptly
- Give zinc (tablets or syrup) when recommended/available
- Refrain from giving antidiarrheals
- Give antibiotics when prescribed (i.e., for bloody diarrhea, and *not* for watery diarrhea)

Private Providers

- Practitioners recommend and teach ORT, ask about danger signs, discourage use of antidiarrheals, and prescribe antibiotics appropriately
- Drug sellers recommend ORS/ORT and refrain from selling antidiarrheals to treat childhood diarrhea; ask about presence of blood in the stool and refer to an appropriate provider

- Both practitioners and drug sellers counsel parents regarding feeding/fluids during illness and recuperation; when available, recommend zinc supplements and emphasize giving the full course

Community-Based Volunteers

- Explain the importance of rehydration; recommend and teach correct use of ORT
- Provide ORS (and zinc tablets or syrup if available)
- Counsel parents regarding feeding/fluids during illness and recuperation
- Discourage use of antidiarrheals and inappropriate use of antibiotics
- Teach parents signs of severity
- Recognize signs of severity and refer to a health center

Health Workers

- Explain the importance of rehydration; recommend and teach correct use of ORT
- Provide ORS (and zinc tablets or syrup if available)
- Counsel parents regarding feeding/fluids during illness and recuperation
- Discourage use of antidiarrheals and inappropriate use of antibiotics
- Treat severe cases appropriately

What are the Key Challenges?

Many community-level CDD programs lost funding with the introduction of IMCI. For health workers, IMCI has also meant reduced training specifically on CDD (e.g., in counseling skills). Many of the early behavioral challenges related to ORS use remain prevalent.

- Programs suffer from an artificial separation among health, nutrition, and environmental strategies, especially at the community level.
- Indicators for CDD are very complex and have changed often over time, making both program feedback and advocacy difficult.

What Do Mothers Really Want?

Where Do They Really Go For Help?

Many experts believe the focus of current CDD programs should be on private providers, where the majority of families go for help.

Despite 25 years of ORT promotion, most caretakers still want, first and foremost, to stop their child's diarrhea. The most effective remedies, they believe, are antidiarrheals and antibiotics.

The majority of cases of childhood diarrhea, moreover, are treated in the private sector. Even providers and drug sellers that know WHO protocols may prescribe or sell inappropriate drugs. And cases of bloody diarrhea often do not receive antibiotics. It is crucial to understand the practices *and* the underlying motivations and barriers of private providers.

As zinc supplementation is launched, CDD programs will have new opportunities to collaborate with private practitioners and drug sellers. However, a new product "launch" should not become a distraction from other key practices, and public/private collaboration is crucial even where zinc is not being introduced.

- Feeding messages are crucial, are the most difficult for caretakers to practice and for providers to negotiate, and are often overlooked completely.
- Oral rehydration therapy is a unique treatment model and requires that caretakers understand the concept of rehydration. ORT is also a cluster of behaviors over several days. However, caretakers often give ORS briefly, and in small amounts, just like a medicine.
- What mothers want most is to stop a child's diarrhea, which ORS does not do.

- Parents demand other treatments (especially antidiarrheals and antibiotics). Providers want to please parents. And drug sellers can make a higher profit on remedies other than ORS.
- Zinc supplements will help satisfy families' desires for a "drug" and for stopping the diarrhea.
- However, completing the full course of 10-14 days' treatment will be challenging, especially once a child no longer appears ill.
- Launching of zinc will be a complex and lengthy process requiring changes in protocols, product development and consumer research, and promotion among both providers and the public.
- A large percent of cases are treated in the private sector, but most programs are aimed at public providers. Also, governments may be reluctant to deal directly with unlicensed practitioners.
- Both community and private providers miss signs of severity and treat inappropriately.

How Can Communication Approaches Contribute?

Advocacy

- Advocate with donors and ministries to increase attention to diarrhea morbidity/mortality. Integrate efforts with nutrition and hygiene programs; promote collaboration with private providers.
- Promote attention to new studies and WHO's recommendations related to zinc supplementation to draw fresh attention to CDD challenges and opportunities.

Research and Strategy Design

- Analyze coverage data and focus formative research on key issues including low status of ORS, misuse of antidiarrheals and antibiotics, feeding practices, prescribing practices of private providers.

- Conduct an ethnomedical study of local terms related to both simple diarrhea and dysentery to understand practices; include local terms in caretaker materials and provider training.
- Study feeding practices during and after diarrhea. Work with a nutritionist to identify "special" local foods and food-based liquids that can reduce duration of episodes.
- Conduct observations and exit interviews and use mystery clients to understand prescribing practices of private providers.
- Carry out operations research regarding introduction of zinc supplements.
- Help program planners focus on key behaviors. Develop monitoring indicators for specific problems (vs. just measuring "use of ORT").

Families

- Design/test strategies to increase focus on feeding and attention by the whole family throughout illness and recuperation; include focus on special foods (that reduce duration) where appropriate.
- Test strategies to reposition ORS as a high quality product for rehydrating a child.
- Design a strategy to promote improved caregiver mixing/administration skills.
- Where necessary (ORS is not available) or appropriate, promote approved food-based ORS recipe.
- Design a marketing strategy to launch zinc supplements. Focus on the benefits of zinc and promote the full course of treatment. Design/test product instruction materials.

Private Providers

- Help design training programs for private providers based on their perceived benefits of current prescribing practices and barriers to ideal practices.

- Focus on the problem of training *at scale*.
- Create job aids, point-of-purchase materials for private providers.
- Introduce zinc protocols where appropriate. (Use updates as an opportunity to review key prescribing and counseling practices.)

Health Workers/Community-based Volunteers

- Improve counseling skills of health workers/ community volunteers through focus on negotiation of harmful practices, discussion of feeding practices, and instruction in ORS mixing skills.
- Improve recognition and treatment of danger signs, especially bloody diarrhea. If actual training is not possible, disseminate “technical updates.”
- Focus on diarrhea as a “moment of opportunity” to analyze serious offending feeding or hygiene

behaviors. Collaborate with nutrition programs to target this important moment.

- Introduce zinc supplements, when available, through technical updates; design supporting job aids. (Use zinc updates as an opportunity to review the *cluster* of key messages.)
- Design job aids for health workers: prescription pads (for special food), counseling cards, message guidelines, Q&As.
- Improve supervision checklists (e.g., include counseling on nutrition and harmful remedies, etc.)

Commercial Sector Collaboration

- Support work with manufacturers to improve packaging, instructions, and detailing to providers—for ORS and especially as zinc products are introduced.

5 Malaria



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Malaria kills about one million children each year, mostly in sub-Saharan Africa. Children under two and pregnant women are particularly vulnerable. In endemic areas, 25 percent of child mortality can be due to malaria.¹ Infection during pregnancy is also a major cause of maternal anemia, low birth weight, and miscarriages.² Malaria control efforts should be part of safe motherhood, newborn, and child survival programs.

THREE INTERVENTIONS

WHO emphasizes the importance of three interventions:³

- Children and pregnant women should sleep under insecticide-treated bed nets (ITNs)
- Pregnant women should receive intermittent preventive drug therapy (IPT) as part of standard antenatal care
- Children who have fever should be treated “presumptively” for malaria with appropriate drugs

Eighteen African heads of state committed themselves to achieving 60 percent of national coverage for each of these interventions by 2005. Roll Back

¹ Black et al. 2003.

² Steketee et al. 2001.

³ This paper does not discuss environmental strategies. However, WHO and USAID also support indoor residual spraying (IRS) and larval control. The technical consensus is that IRS is suited for areas of unstable malaria (not year-round), epidemic prone malaria, in urban settings, and in refugee camps. (See USAID 2005.)

Malaria (RBM)⁴ was formed to support countries in achieving these goals and to reduce global malaria burden by 50 percent by 2010. Reaching the targets will be a challenge. However, this high-level commitment and the current interest of donors has raised the profile of the disease and is assuring attention to a range of interventions.

In endemic countries, malaria prevention and control are usually coordinated through a national program and may receive substantial donor help. RBM has helped almost all countries in Africa develop comprehensive malaria control strategies. (Countries who apply for support from the Global Fund for HIV/AIDS, Malaria and Tuberculosis must have integrated strategies.) Coordinated efforts are young though, and strategies are under constant pressure to evolve. Drug resistance is a critical problem requiring ongoing attention to both policies and products. Behavior change and communication programs need to keep abreast of these changes and help caretakers as well as providers avoid confusion.

Insecticide-treated nets are relatively new in most countries. Complementary strategies for different segments of the population are necessary to make the product accessible and affordable to those who are most vulnerable while encouraging the growth of a sustainable market. Programs have been preoccupied with delivery challenges and with adjusting the cost of nets (through social marketing schemes for example). Some of the complex behavioral issues involved in acquiring, using, and retreating ITNs have received much less attention. Effective behavior change and communication approaches are critical to assuring ITNs are used appropriately.

Treatment of child malaria is in many ways “joined at the hip” with two other high-mortality health problems: diarrheal disease and acute respiratory infections. The three diseases have overlapping symptoms and in fact often occur together. Many careseeking and treatment issues are common to all three—from the need to recognize symptoms and danger signs, to the challenges of counseling and compliance and referral. Preference for treatment in the private sector is another familiar challenge that expands the range of priority actors and audiences.

While child survival programs often recognize that community-based approaches are crucial for treating all three childhood illnesses, efforts are rarely integrated (See also Chapters 4 and 5). In malaria-endemic areas, both careseeking and treatment strategies may highlight fever and give insufficient emphasis to symptoms of ARI, in particular. Community-based programs managers, as well as communication planners, have special roles to play in assuring selected key practices are lean and well targeted so that the ultimate goal of integrating child survival strategies at the local level can be achieved wherever possible.

The discussion below is divided into two parts: *prevention* and *treatment* of childhood malaria.⁵

MALARIA PREVENTION— INSECTICIDE-TREATED NETS

Supply and Demand—a Not So Simple Balance

Insecticide-treated nets can reduce child deaths up to 17-23 percent.⁶ However, access to ITNs is a major challenge in most countries. Usage varies from 2

⁴ Roll Back Malaria was launched in 1998 by the World Health Organization, UNICEF, UNDP, and the World Bank to provide a coordinated international approach to fighting malaria. RBM is a global initiative made up of more than 90 partners.

⁵ Intermittent preventive therapy for pregnant women is part of safe motherhood programs and is not discussed here, although this is an important area for integration with newborn interventions.

⁶ Lengeler 2004.

percent in some countries to about 70 percent in urban areas of Tanzania. Overall, fewer than 10 percent of African households now own even one treated net.⁷ A number of USAID and other programs are working hard to make ITNs available and affordable to families. A major task for governments and donors is to balance *supply* and *demand creation* activities for multiple population segments and often for different products and through different delivery mechanisms.

Roll Back Malaria has outlined a strategic framework for scaling up ITN programs based on a mix of private and public sector strategies that should evolve as the commercial market expands.⁸ The goal is to make nets available to entire populations on an equitable and sustainable basis. At any given time the market for nets—and the government’s approach to subsidizing them for those who are most vulnerable—may include several components. For example, ITNs may be sold at reduced prices in antenatal clinics or by community-based groups; vouchers for ITNs may be distributed at clinics or by large employers; and free nets or vouchers may be distributed during campaigns. Similarly, retreatment kits are sometimes sold in shops and also distributed free during measles campaigns or child health weeks. Community retreatment campaigns may be held on National Malaria Day or other occasions.

Behavior change and communication efforts must therefore be versatile but sensitive to the overall balancing act aimed at national coverage. And although “acquiring the net” may be the overriding aim of a given strategy, *demand creation* activities for a distribution system in one geographic area should be

sensitive to repercussions in a neighboring area with different (or no) distribution systems, and should not overshadow attention to complex issues of *use*.

ITN Use—a Not So Simple Behavior

Key family practices for insecticide-treated nets are:

- Acquire the ITN
- Treat the net before using if necessary (e.g., if it comes bundled with a treatment pack)
- Hang the ITN in the home and use it *every night*
- Make sure pregnant women and children under five sleep under the net(s)
- Retreat the net periodically, depending on the type of net and according to the type of insecticide treatment available⁹
- Replace the net when it becomes torn or deteriorates (after about 3–4 years)

Retreatment is itself a complex behavior and represents an even greater challenge to date than use of nets *per se*.

Most programs so far have emphasized the first step—*acquire the net*. Some evaluations of ITN programs are still focused on “nets distributed” or “household net ownership,” rather than “nets used by targeted individuals the previous night.” Much less common are studies measuring actual behaviors in the home or examining constraints and enablers connected to the different aspects of *use*. Further studies of this nature will make important contributions to behavior change programs in the coming years.

⁷ Hill et al. 2001.

⁸ WHO 2002 (c). (It is estimated that approximately 32 million nets and 300 insecticide treatments are required by vulnerable groups per year in Africa, representing from \$US 450–600 million. The cost of nets therefore prevents developing country governments from providing them free to all of those in need.)

⁹ Most ITNs have to be treated every six months or more often depending on how often they are washed. Long-lasting insecticide-treated nets (LLINs) remain potent for about 20 washes or the entire life of the net, so they do not have to be retreated. LLINs were recently certified by WHO but are not yet widely available or affordable in Africa.

Creating a “Net Culture”

Malaria experts talk about the importance of building a “net culture”—making ITNs familiar and desirable. Most African families are a long way from thinking of sleeping under a treated net as “normal,” whether or not they own one. Even the very poor spend money on coils and sprays to prevent nuisance biting. However, they often don’t understand the connection between mosquitoes and malaria—particularly those that bite at night—and hence the value of ITNs. Even in some countries where net use is a tradition (for example in the Gambia, Mali, Niger, or Burkina Faso) use of *treated* nets is a new concept.

Generic demand creation for ITNs is a first step in those countries. Communication strategies have focused on improving knowledge of essential facts:

- Mosquitoes cause malaria
- Mosquitoes that bite at night are the only cause of malaria
- Malaria is a serious, potentially fatal disease
- Children under five and pregnant women are most vulnerable
- Malaria transmission can take place year round

In Tanzania, communication research found that most people linked mild malaria with fever (and called it “malaria”) and around 76 percent of people associated it with mosquitoes.¹⁰ But it was perceived as a normal illness that could not be prevented. Symptoms of severe disease were associated with other local illness categories and not connected to either “malaria” or mosquitoes. The promotion effort for ITNs therefore built on the major perceived benefit of nets—i.e., preventing nuisance biting—and also repositioned malaria as a disease that kills and can be prevented.

USAID’s NetMark project found that in multi-country research, the attribute people most valued in a mosquito control product was *killing mosquitoes*. However, nets were not associated with killing mosquitoes, so the promotional strategy attempted to make that link with ITNs. The tagline “Mosquitoes Kill: Kill Mosquitoes,” was added to ads about ITNs.

Research is necessary to understand what people are presently doing to kill mosquitoes (in other words, the products that *compete* with ITNs), what they like about them, and how to *position* treated nets as a superior product. Costed out over several seasons, ITNs may not be more expensive than products people are already using, but they require a larger single outlay of money. One task is to position the net as a superior product and a necessity rather than a luxury. An ITN is a valuable investment and is worth putting some money aside for.

Getting the price right is one of the ongoing preoccupations of programs that subsidize nets. Some donor-supported strategies have focused on bringing down the price of ITNs so that they eventually “sell themselves” and little demand creation is thought necessary. In most programs, however, cost is a potential barrier for some portion of the target population. This increases the importance of several “secondary” audiences. Although the pregnant woman or mother may qualify for the net, messages should also be directed at male household members who usually make purchase decisions and also influence who actually sleeps under the net. The ITN provider—whether a shopkeeper or a nurse in an antenatal clinic—is also in position to influence both the purchase and the use of the net.

¹⁰ Minja et al. 2001.

Common Barriers

Formative research in a number of countries has shown that common barriers to the purchase and correct use of ITNs fall into several categories:¹¹

Acquiring the Net

- Cost of the ITN
- Availability of income (often lowest during malaria season)
- Availability and convenience of net outlets
- Familiarity with sprays and coils (no “norm” to try a net)
- Focus on killing mosquitoes – but no understanding that the ITN plays this role

Sleeping Under the Net

- Husband has priority for sleeping under the net (since it is valuable and expensive)
- Perception that a net is hot
- Net is difficult to hang and inconvenient (especially if people sleep outside or if children sleep in different places at different times)
- Fear that children may damage or tear the net
- Fear that child (especially a baby) might suffocate
- Belief that malaria is seasonal and net need only be used during certain times of the year

Fears About the Insecticide

- Fear that the smell will make a pregnant woman nauseated
- Fear that chemical may cause miscarriage or damage to the fetus
- Fear that chemical will harm children, especially if they bite or suck on the net

- Fear that chemical is bad for people with allergies or asthma

Net Treatment/Retreatment

- Retreatment is messy, requires equipment, is a “bother” to do, and may seem poisonous
- Retreatment kits are hard to find

People need to hear safety messages from those they trust. These may be health providers, manufacturers, community and religious leaders, or testimonials from users.

ITNs have many attractive features beyond their role in malaria prevention. Potential enabling factors for use include the facts that ITNs:

- provide a good night’s sleep
- provide privacy in close quarters
- protect babies from other insects (like flies)
- kill many insects (head lice, bedbugs, cockroaches)
- can be *easy* to hang (if different ways are demonstrated)
- protect against dust and dirt falling from the ceiling
- provide decoration

Among the studies that have looked at actual use of ITNs in the home, two of the most common behavioral problems are lack of use *year long*, and low use *by young children*. Formative research should always include a special look at potential determinants of these practices and how correct use can be encouraged.

Ongoing program monitoring is important for understanding what happens to nets once they reach families. Who sleeps under these nets and how often? When are nets washed and when are they retreated? What are the differences between doers and non-doers? How many nets actually stay in the family? Free and

¹¹ NetMark 2001.

subsidized ITN programs must be vigilant about “leakage” to non-target groups and the possibility of a black market.

Timely Reminders and Building Skills

Initial promotion of ITNs has included broad use of mass media, road shows, posters, billboards, and other public channels. These media efforts create public awareness and raise the perceived value of treated nets. Negotiation within the family and specific knowledge and skills are also needed. Systematic message strategies should focus on timely reminders and instructions for identified vulnerable groups. ITNs are not “regularized” into health protocols in most countries. The pregnant woman’s health card may be stamped at the ANC when she receives a net but there is not likely to have been any blank space there reminding her and the provider that she needed one. The same is true of the child health card—there may be no reminder for ITN use even though the child is expected to sleep under one and may have his or her card stamped at a mass distribution. Simple but systematic changes in standard materials can contribute to a change in norms within the health system.

Any parent who brings a child into the health system (especially for treatment of fever) should be reminded that the child should be sleeping under an ITN. Facilities and community workers should be able to tell families where nets are available. Providing instructions about correct use is a larger challenge. Some countries have promoted key practices through women’s groups and demonstrations at market places and other public events. However, face-to-face instructions and personal reminders are key to reinforce who should sleep under the net and when and how soon the net should be retreated.

Communication Issues and Opportunities Vary by Delivery Strategy

Behavioral challenges, influencers, and message strategies will differ according to how ITNs are delivered in a given community. Below are four common delivery strategies and the behavioral issues associated with them. These strategies are not exhaustive but represent typical models communication planners involved in child survival may be asked to support.¹²

Subsidized ITNs Sold at Health Clinics

In some countries ITNs can be purchased by pregnant women or parents of children under five at public health clinics. Population Services International (PSI) manages such programs in several countries. Supplies often sell out within a few days under such schemes, so those who live farther away may be less likely to get nets. Monitoring in the target area should pay special attention to those who are *left out*. Special communication strategies may have to be aimed at this group.

The presence of nets at the health center helps *promote their purchase* and also provides a good opportunity for health workers to *explain their use*. The amount of time a provider has with the client is short though, and made even shorter on distribution days by the logistics of managing sales. Brief exit interviews can confirm whether women receiving ITNs understand basic messages about correct use. Results can be used to consider ways of improving health worker interaction. Just as a drug should not be distributed without some assurance of “compliance,” ITN distribution should be accompanied by instructions and reminder materials.

¹² Seidel 2004.

As with any “piggybacked” activity, *unintended effects* may be felt on the regular health system. PSI believes there are no negative consequences on attention given to other ANC tasks, for example, during the days ITNs are distributed. However, observations as well as exit interviews are important to confirm that services and counseling (for example on newborn care) are still adequate on these days.¹³

Coupons/Vouchers for ITNs Distributed at Health Clinics

This approach is similar except beneficiaries receive vouchers for the full or partial cost of an ITN instead of the net itself, and no money exchanges hands at the clinic. There is less burden on providers, since commercial outlets assume the tasks of securing, storing, and selling the ITNs. There should also be less danger of voucher supplies running out, hence less danger of those living far away being left out. Vouchers, like nets, can also act as a “draw” to the clinic. And they create a logical moment for counseling on ITN use.

The concept of a voucher may be unfamiliar in some communities and the presence of vouchers may not be as noticeable a draw as actual nets. A pilot voucher scheme in Tanzania connected with antenatal clinics encountered problems with both cost and promotional issues.¹⁴ Two years after the start of

EVOLUTION OF A NATIONAL ITN STRATEGY IN TANZANIA

Tanzania has promoted insecticide-treated nets through several different delivery systems requiring very different communication strategies. These have evolved according to the expansion of the local commercial market, allowing Tanzanians to benefit from both the public health and the economic benefits of ITN distribution and sales.

Social Marketing Product Communication research helped lay the groundwork for a subsidized ITN product, named “Zwia Mbu,” or “Prevent Mosquitoes.” Mass media and person-to-person promotions in health centers positioned the product as preventing malaria and saving lives, as well as providing a good sleep during peak biting hours. Nets were originally imported from Thailand but then purchased from Tanzania’s own ITN manufacturers.

In 1997, the KINET program (managed by the Ifakara Health Research and Development Centre) was launched in two districts. Health workers, shopkeepers, and religious leaders all sold the subsidized ITNs. Most ITNs were purchased at small retail shops, however. The program intensified promotion of retreatment kits when monitoring showed these were not selling well.

In three years time, coverage of infants by ITNs rose from under 10 percent to more than 50 percent. ITNs were associated with a 27 percent increase in survival among intervention area children aged one month to four years.

Voucher Trial and Expansion Because Tanzania has a healthy commercial market for ITNs, the country was able to launch a national subsidized voucher program in 2003 to take the place of subsidized net distribution. Pregnant women receive vouchers for discounts on ITNs when they visit the ANC, and mothers receive vouchers for retreatment kits when their children are immunized.

The national rollout was preceded by a communication campaign promoting the new voucher system and highlighting *who* is eligible (pregnant women and children under five).

Sources: Minja et al. 2001; Mushi et al. 2003; National Malaria Control Programme 2003; Schellenberg et al. 2001.

¹³ PSI has recently completed an in-depth study of provider behaviors in Malawi.

¹⁴ Mushi et al. 2003.

distribution only 43 percent of qualifying women had heard of the scheme and 12 percent said they had received and used a voucher. None of the poorest women in the area had redeemed a voucher. Based on this experience, a national voucher program has increased the amount of the subsidy and will actively promote the *concept* of a voucher (and details about the ITN distribution) widely among the general public.

In contrast, word got around very quickly about a pilot voucher scheme in Zambia.¹⁵ Retailers also made sure mothers knew where they could redeem vouchers and competition for sales drove prices of two products down within a few weeks time. A crucial communication tool is *a list of participating shops*. Every mother should receive the list with her voucher. This must be kept up to date to avoid the appearance of favoritism and to encourage competition. In this pilot, the coordinators supplied participating stores with promotional signs and program logos as both a seal of quality and a tracking device.

Voucher schemes have highlighted the role providers may have to play in encouraging women to *save money* in order to redeem the voucher, or to *negotiate* any remaining cost with *their husbands*. In Zambia, about 75 percent of vouchers were redeemed within 30 days. About 8 percent of women said they did not have enough money and another 8 percent said they were waiting for their husbands to support their acquiring the ITN.

This approach depends upon good collaboration with the private sector to encourage expansion and a steady supply of quality ITNs.¹⁶ The *retailer* should also be prepared to answer questions about net use and remind clients that nets have to be retreated. Only two

countries so far (Tanzania and Uganda) are in the process of launching national ITN voucher programs and their lessons will be useful.

Subsidized ITNs Sold Through Community-Based Groups

Community-based groups (village health committees or groups sponsored by NGOs) may coordinate distribution of ITNs to women with poor access to the health system. Exposure to generic ITN messages is less likely in these remote areas. This means good behavior-oriented training for the community workers who promote and distribute the nets is especially important.

This approach, like others, must also include a plan for promotion of *retreatment* and supply of insecticides. The behavioral “package” is large and may be a challenge for community-based groups, especially when ITNs are still a new concept. Formative research to understand what the specific barriers are and monitoring to assess actual use is especially important in hard-to-reach areas where living arrangements, decision-making, and preferences may be less well understood.

ITNs Distributed Free During Campaigns

UNICEF and the Red Cross have both been active in piggybacking free distribution of ITNs with measles campaigns and other intensive events. ITN distribution can help increase demand for other services. In Ghana, 24.8 percent of those who came to vaccination posts distributing free ITNs during a measles campaign in 2002 said they were motivated by the promise of the net.¹⁷

¹⁵ Chimumbwa & Mwenesi 2003.

¹⁶ This document does not attempt to deal with the important challenge of motivating shopkeepers to participate in a voucher program or to carry and distribute ITNs. The NetMark Project and voucher programs in Tanzania and Uganda are addressing these questions.

¹⁷ Grabowsky unpublished.

Campaigns involve strategic issues that require careful communication planning. There may be social or political repercussions in surrounding areas that do not get ITNs. In Ghana some parents in neighboring areas did not bring their children for measles vaccinations when they heard their communities would not receive nets.

Campaigns allow little time for personal messages. Only the basic information can be conveyed: i.e., the net is to prevent malaria; it is for the child or the pregnant woman; it should be used every night regardless of the season; and it must be retreated every six months. Messages should also include where the parent can get a retreatment kit or when a community retreatment might be scheduled. Red Cross volunteers visited homes before the Ghana campaign and disseminated information about the ITNs. Messages about retreatment could not be shared because the campaign distributed both treated and long-lasting nets. Post campaign monitoring found that among those who said they received an ITN, 60.2 percent said their youngest child slept under it the previous night. This gap may have been due to the fact that the campaign took place during the dry season or it may indicate a problem targeting under-fives. Around 11 months after the campaign about 2 percent of households had sold their nets.

Message planning for providers is easily overshadowed by the many logistic challenges of a mass distribution. However, since ITNs are still a relatively new product, pretesting of messages is always important to avoid confusion. During an ANC-based campaign in one East African country some pregnant women interpreted the message—"the net is for the infant"—literally and saved the net until the birth of their baby.

¹⁸ Schellenberg et al. 2002.

¹⁹ Chavasse et al. 1999.

Retreatment Practices and Messages

Retreatment is sometimes considered a downstream issue to be addressed seriously once the problems of making ITNs available and affordable have been resolved. In fact, retreatment is central. After six months, most nets are no longer potent if they are not retreated. Even the best programs achieve only 30 percent retreatment of nets distributed.¹⁸ This is partly due to insecticide kit supply problems, and partly a lack of adequately intensive promotion in most places.

Ideal *treatment* as well as *retreatment* practices vary according to the product and also the program. This means a universal treatment/retreatment "message" is usually not possible. Some programs distribute nets after an initial treatment; some are "bundled" with a treatment kit to be used in the home. Most nets have to be retreated about every six months depending on how often they are washed. Retreatment options include:¹⁹

- Dip-it-yourself kits
- Community retreatment campaigns (bulk dipping at a central location)
- Fixed retreatment services (individual goes to a commercial outlet)
- Temporary retreatment centers (e.g., on market days)
- Mobile retreatment services (entrepreneur visits homes)

Retreatment is inexpensive and in theory should be easier than acquiring a net and sleeping under it every night. In fact supply, demand, and correct use are all problems. Few shops carry the retreatments even where nets are available. Even a small cost seems to be a barrier. Several programs have achieved high rates of

treatment through free promotions, but these rates then dropped when charges were introduced. In Ghana retreatment rates were up to 77 percent when supported by the government but dropped to 14 percent when families were asked to pay.²⁰ Some programs have distributed the kits free (at measles campaigns for example). However, *home retreatment* has so far proved a difficult behavior to promote.

In early net success countries (Viet Nam, China) retreatment was organized on a community-wide basis and funded by the government. The Eritrean government set up semi-permanent retreatment centers located at health facilities and other locations where people can bring nets shortly before the malaria season. Three zones recently achieved retreatment rates of 78 percent, 61 percent, and 52 percent, respectively.²¹

Retreatment is an important focus for creative planning and promotion. Local retreatment campaigns can be organized by the health sector (for instance as part of Africa Malaria Day activities), can take place at schools, or can be sponsored by civic groups (the boy scouts for example).

Treatment/retreatment can also be viewed as a *primary* rather than a *secondary* behavior. While most people still do not have nets, many do have curtains or bed covers. These can also be safely dipped and will kill mosquitoes.²² A six-year study in Burkina Faso found that treated curtains reduced child mortality 19-24 percent.²³ Some experts have suggested that treatment of curtains may be more feasible than ITN use in some kinds of homes.²⁴

CARESEEKING AND PRESUMPTIVE TREATMENT OF CHILD MALARIA

Key Practices and the Pressures of Drug Resistance

Managing childhood malaria requires recognition of symptoms and prompt careseeking to make sure the child is given the *right drug*, at the *right time*, and in the *right dose and duration*. Access to antimalarials and to good information and counseling about dosage are key factors in both effective treatment and in managing the problem of drug resistance. Community careseeking patterns and preferences about providers—especially for those in the private sector—complicate this challenge.

Families must also recognize *signs of severity* and get help from a skilled provider without delay. A child with severe malaria can die within 48 hours. “Treatment failure” is a common problem in areas with high resistance to the first-line drug. Providers need to anticipate this and families need to understand that this is not the same as “provider failure.” Effective communication strategies and tools for both families and providers are especially urgent in this context. *Trust* is important as well as *knowledge* and *access*.

The key steps in malaria case management outlined in the box on page 91 highlight the interconnectedness of supply and demand challenges. They also highlight the fact that simple malaria may become severe malaria (resulting in at least two visits to a provider and two rounds of treatment) and that a caretaker may go to several providers. The critical communication issues and target audiences will depend

²⁰ Hill et al. 2001.

²¹ Roll Back Malaria 2002.

²² Ansari 2002.

²³ Diallo 2004.

²⁴ Roll Back Malaria 2002.

MANAGING CHILD MALARIA

Key practices for managing child malaria include actions by both the family and a skilled provider:

- Caretaker recognizes signs and symptoms of malaria—*especially fever*
- Caretaker understands malaria requires immediate and complete treatment with an appropriate antimalarial
- Caretaker has access to immediate care—*and seeks care without delay*
- Caretaker provides adequate home care—*right dose of antimalarial for right number of days*
- Caretaker brings sick child to skilled provider for care—*caregiver recognizes/acts on specific danger signs*
- Informal service provides adequate care and/or referral—*including counseling on home management and compliance*
- Formal service provides adequate care—*including counseling on home management and compliance*
- Caretaker complies with appropriate treatment and/or referral
- Referral facility provides quality care
- Ongoing review of case management protocols conducted to ensure protocols and practice reflect known resistance levels with corresponding effective and adequate drug supplies available.

Source: CORE 2003.

(Details in italics have been added)

on the model for *access* in a given area. Each program must design its own list of key practices for both caretakers and providers based on drug policies, what is feasible in a given setting, and what will save lives.

Advocating for Access

Access to appropriate drugs is essential for prompt care. In much of Africa, children can die from malaria episodes before they reach health services. Promoting specific *policies* to increase access to drugs and counseling may be an essential step toward improving *careseeking* and *caregiving*.

Studies have shown that it is feasible to scale up effective programs stressing *home-management* of child malaria.²⁵ Roll Back Malaria emphasizes the importance of assuring that parents have access to treatment within 24 hours, and promotes strategies that bring “the hospital to the home.” *Community-based workers* who are trained to provide counseling and/or referral as well as drugs have played an important role in improving compliance to drug regimens.²⁶ Improved packaging (especially “pre-packs”) of drugs and dosage instructions have also been strongly linked to better treatment practices as well as compliance.²⁷ Another important approach is to improve the prescribing and counseling behaviors of *private practitioners* (when they are already treating a large percent of cases). Depending on local careseeking patterns, one or more of these strategies may be crucial areas for advocacy among policymakers.

Identifying Symptoms

The need to bring “the hospital to the home” to treat child malaria reflects the high mortality of malaria in

²⁵ WHO 2002(b).

²⁶ Ibid.

²⁷ Some programs are also supporting drug franchise shops, etc. to assure a supply of drugs close to the community.

some areas, the frequency of illness (a child might have several episodes in a year) and the urgency of access to drugs. It also reflects the assumption that parents are already likely to recognize, or can be taught to recognize, at least certain symptoms and associate these with malaria. In this sense malaria is usually considered less complex than ARI, for example. Most successful ARI programs have been based on *case-seeking* models (see chapter 6).

The Key Sign of Simple Malaria is Fever.

A child with fever should be given an antimalarial without delay.²⁸ In malaria endemic areas fever is “presumed” to indicate malaria. Fever is recognized by virtually all cultures as a sign of illness, although families may or may not associate it with malaria.

The Signs of Severity Are:

- Convulsions
- Coma or lethargy/change in consciousness
- Fast or difficult breathing
- Vomiting everything
- Unable to eat or drink

The first two signs are more common with malaria. The third is more common with ARI, which often overlaps with malaria (or can be mistaken for it). Many studies have shown the symptoms of severe malaria are easier to recognize by both families and providers than those for severe ARI or diarrhea, and families do act on them. Understanding how parents interpret these signs, when and where they go for care, and how they actually treat the child, is the first major task of a behavior-based program.

Understanding Careseeking and Caregiving

Families in some communities immediately associate fever with simple malaria. Others apply home remedies or acquire herbal medicines. Even those who recognize a link between fever and malaria may associate severe symptoms with other diseases, however. Convulsions, twitching, and coma are often linked to supernatural causes and families may seek help from a traditional healer. A taxonomy of local illnesses and related treatments can help explain when and why parents give certain remedies or consult specific providers. Caregivers will often go to first one provider and then a second or a third if the child does not improve. The formal health system may figure into this pattern very late or not at all. Parents may also believe they have several options for treating a child but go directly to a drug vendor or pharmacist if they have the money, in order to save time.

The speed of treatment may also be determined by decision-making processes in the family. A male family member usually makes decisions involving cost. In Ghana, convulsions indicate a special condition that requires a male family member to consult with ancestors through a soothsayer. Understanding the reasons for *delay* is always crucial.

Illness narratives are a useful methodology for analyzing what people actually do and what the specific barriers are to desired practices.²⁹ Communication programs can easily waste effort teaching families what they already know or trying to promote a behavior that is simply not feasible in view of strong competition from other practices. Ideally, formative research can help determine what the program emphasis should be rather than just how messages should be designed or

²⁸ Treatment of simple malaria can also include giving an antipyretic or tepid sponging to bring down the fever. However, the evidence base for these practices is mixed and recommendations may change (see Hill et al. 2001).

²⁹ Baume 2002 (a); Baume 2002 (b).

A BASIS FOR MESSAGES AND PROGRAM DECISIONS

Research on *careseeking practices in Zambia in 1998* provided the basis for recommendations at multiple program levels.

Simple Malaria Mothers were keenly aware of fever as a sign of malaria. They went to the health center for free drugs or to drug vendors if they had money and purchased chloroquine (at that time the first line drug).

Many mothers gave their children incorrect doses of antimalarials even when they had been to the health center. Moreover, health workers often gave mothers partial doses. Exit interviews revealed 40 percent of mothers had not understood instructions about medications.

Some mothers did bring “treatment failures” back to the health center but health workers often did not ask what drugs had already been given, and so gave chloroquine once again rather than a second-line drug.

The research recommended changes at multiple levels:

- A change in policy so that mothers would receive the full course of drugs

- A dosage chart posted for everyone in the health center with a reminder to give the full treatment
- A graphic dosage card for nonliterate caregivers
- Training in basic communication skills for health workers dispensing drugs
- Allowing community health workers (CHWs) to give first-line drugs since mothers understand the signs of simple malaria

Severe Malaria Mothers recognized convulsions and even recognized twitching as a precursor to it. However, they often went to traditional healers for treatment. The study therefore recommended *working with healers* to encourage referrals to the health center.

Messages for Mothers Key messages for mothers focused on the amount of medication to give, the importance of completing the dose, signs indicating treatment failure, and the urgency of going to the health center if a child begins to twitch or convulse.

Source: Baume 2002 (b).

what communication channels should be used. In-depth research, even on a small scale, can be invaluable in determining program policies.

Provider Practices

The role of the skilled provider is to “assess the child, classify, treat, and refer.” The provider must be able to use local terms to ask about symptoms and to find out whether the case is severe and requires referral. He or she should also ask how long the fever has lasted and what drugs and other remedies the child has received.

This is the only way to know whether the case represents a “treatment failure” and may require a second-line drug.

The most crucial messages concern how to give the appropriate drug and what to do if the child doesn’t get better. Counseling should include:

- Details about the medicine and the importance of giving the full dose
- What to do if the child vomits (a replacement dose may be necessary)
- Symptoms of severity

WHEN FAMILIES DON'T VISIT THE HEALTH CENTER

Illness narratives gathered in Kenya in 1998 revealed that around 90 percent of children with malaria were first treated at home, and many *only* at home. To some extent pharmacies replaced health centers for diagnosis and treatment advice. The short waiting time and the absence of a consultation fee were key benefits. If symptoms persisted, most families visited a variety of providers and gave multiple drugs.

If home treatment failed, about half of mothers went to the health facility within one to three days. However, the study found that providers did not ask where mothers had already gone or what they had given the child. Providers typically recommended several drugs (including an antipyretic). Exit interviews at health facilities showed that only 25 percent of caregivers could explain how to give the medications. Fewer than half gave the correct dose.

Promoting the second line drug In contrast to Zambia (see box page 94), mothers in Kenya did not recognize twitching as serious, and often not even convulsions unless the child actually lost consciousness. Moreover, mothers found Fansidar (the second line drug at the time) too expensive to purchase and most did not like it because it does not reduce fever as fast as chloroquine.

These factors all added up to a serious problem for children whose treatment with the first-line drug failed. The study recommended specifically promoting the benefits of Fansidar as a second line drug and also reminding mothers not to give additional antimalarials. The national malaria control program also subsequently conducted a successful pilot program for pharmacists in order to improve their prescribing practices (see box page 99).

Source: Baume 2002 (b).

- What to do if the child doesn't get better (return/referral)
- Advice on continuing fluids and feeding during recuperation

A child who has severe malaria may need treatment at a referral facility (see box page 95).

A diagnosis of malaria should always go hand-in-hand with advice to the parent about the need for children to sleep under an ITN. Ideally the provider can tell the parent where and how to get one that is affordable.

Exit interviews and observations can help reveal prescribing problems as well as gaps in counseling. Well-designed job aids such as dosage charts, treatment posters, and counseling cards can support provider behaviors. Studies have found that even in government health facilities there may be confusion about basic treatment protocols. Counseling and dosage instructions to parents can be reinforced with simple graphic reminder materials.

Compliance, Drug Resistance, and Communication

Drug resistance complicates the behavioral challenges of any program:³⁰ Seeking treatment and getting the *right drug* are only the first steps.

Importance of Completing the Dose

A parent often stops giving prescribed medicines as soon as the child starts to feel better. The remaining medicine is saved for a subsequent illness. In some countries caretakers pay the full cost of drugs even

³⁰ Resistance to Chloroquine (CQ), the first-line antimalarial for many years, is now widespread. Increasing resistance to sulfadoxine-pharmethanine (SP)—known also by the trade name Fansidar™—is also being documented. WHO now recommends that all countries experiencing resistance to their first-line antimalarial therapy change to an artemisinin-based combination therapy (ACT). Each of these therapies is progressively more expensive, and supply of ACTs is also a challenge. Shifts in drug protocols have many repercussions beyond cost (including retraining and motivating change by health workers). (See USAID 2005.)

HOW TO MAKE REFERRAL WORK

Referral is a notoriously weak link in managing illness and a challenge for families and communities.

The local health system and the community can work together to support a child who has been referred. One review of community-based programs identified the steps a community health worker can take to facilitate referral. The CHW can:

- Actively counsel the parent on the need to take a child to referral facility
- Inquire about barriers to taking the child
- Link parent to sources of funds (for careseeking)
- Link parent to transport
- Accompany family to a referral facility
- Give first dose before referral
- Fill out referral slip
- Record the referral in a register

Every program that includes referral should at a minimum promote the use of *referral* and *counter referral* slips so that parents are given priority at the referral facility and the original provider receives feedback and can follow up on the case. *Verbal instructions* on the need for referral and where and how to get there are also crucial.

The community can also identify ways to support severely ill children. A common element of Safe Motherhood programs is collective action to identify emergency transport and set up emergency funds. These systems can be extended to children.

Source: Gilroy et al. 2004 (draft).

at the public health center; in others only the first dose is free. Non-compliance can seem both logical and economical to the family.

An important focus of communication efforts is to make sure parents understand the importance of completing the *full course of drugs* whether they receive them from skilled providers, pharmacists, drug vendors, or CHWs. Studies have shown that compliance *can* be significantly improved with good counseling, carefully pretested instructional materials, and dose-specific packaging. Not surprisingly, the greater number of these elements combined in a program, the greater effect on compliance.

Discussions about Treatments

In some communities a high proportion of parents bring their children to the health center only when they have already tried other treatments and these have failed. Many children who reach the clinic may be cases of drug resistance. However, this is not always the case. In contrast, a study in Tanzania found that parents often brought their children to the health center first but would switch to traditional remedies if the prescribed drugs failed. Discussions with parents about treatment must anticipate both scenarios. The provider must always ask about *previous* remedies, and also warn parents that *if* the child doesn't improve within a day or two they should *come back* for further treatment.

Support for Changes in Policy/Antimalarials

Few countries escape having to change first-line drugs at some point. Special communication efforts are needed to support these shifts. Different drugs require different doses and offer different benefits and side effects. Costs also vary, which has implications for the health system, pharmacies, and families. Providers need to be fully prepared and understand the need for the changes. A change in protocols should be supported by new dosage charts, Q&A sheets to help providers warn families of changes and answer questions, and revised reminder materials for caretakers.

Products, Packaging, and Instructions

Several programs have shown that compliance may be improved dramatically by changing product packaging and sometimes the product itself.

In some countries syrup is often prescribed for children under five. The family may have to bring or find their own bottle. Measuring out doses for the right number of days can lead to errors on the provider's part. Both under- and over-dosing by parents are common. A program in Ghana improved prescribing practices as well as compliance by shifting from syrups to pills and prepacking these in the clinic's dispensary with a simple heat-sealing machine.³¹ An evaluation found that overall compliance was 43 percent for syrups and 92 percent for tablets. Most parents preferred the tablets even though they had to crush and dissolve them for the child. The new system also reduced waiting time in the clinic by more than half.

In parts of Ghana, as in many countries, drug dispensing by community volunteers has been simplified by distributing pre-packs produced by a pharmaceutical company. A white pack printed with an image of a crawling infant (for ages 6-11 months) and a yellow pack with the image of a walking child (for children up to six years) were easily understood by volunteers and parents. Infants received syrups or pieces of the standard tablet. The CHWs in this study were trained to treat both malaria and pneumonia and also dispensed cotrimoxazole—in pink pre-packs.³²

In Uganda, pre-packaged antimalarials are distributed free through community drug distributors. The pre-packs are produced at the national level.

Distributors are trained in symptom recognition and refer severely ill children. This is one of the few programs that is planned for scale-up to a national level. (By July of 2004 it had been launched in 30 of 56 districts.) The percent of children receiving treatment within 24 hours has risen from 46 to 54.4 percent in initial program areas. The percent of those receiving the recommended treatment rose from 9 to 50 percent.³³

Good product *instructions* are as important as a convenient product. A number of programs developed simple pictorial inserts explaining how to administer antimalarials. An intervention in Nigeria looked at the effect on compliance of both an improved insert and improved verbal instructions. The evaluation showed compliance was 36.5 percent for the control; 51.9 percent among parents receiving the insert; and 73.3 percent among those also benefiting from the improved instructions.³⁴

Strengthening Community-based Strategies

Roll Back Malaria recommends home-based management of fever in order to help families avoid potentially fatal delays in treating children. A number of interventions have shown that community health workers, including volunteers with low levels of education, can be trained to educate parents, to diagnose simple and severe malaria, to dispense drugs, and to affect compliance.

As for ARI, models range along a continuum—from activities focused on education, assessment, treatment, and referral; to distribution of antimalarials

³¹ Yeboah-Antwi et al. 2001.

³² WHO 2002 (a).

³³ WHO 2002 (a).

³⁴ Okonwo et al. 2001.

(at low or no cost); to case management directly by families.³⁵ Training must target a few key behaviors and messages. CHWs must practice using tailored job aids that help them diagnose, treat, and counsel parents. Unlike ARI, malaria does not require active case-seeking by providers. Parents do have to know who offers services and find these providers credible. Good relations with the health system are also key, especially where referral is involved. The drug supply must be reliable. Specially packaged drugs have been particularly important in these programs.

Education and Assessment

Community volunteers have been effective in improving careseeking for simple malaria. In programs when they have multiple responsibilities, CHWs are often more effective with regard to malaria than they are in changing behaviors regarding diarrheal disease or ARI. For example in Indonesia, a two-year intervention involving community volunteers conducting education at monthly health posts and carrying out home visits improved careseeking rates for fever from 26 to 57.7 percent.³⁶ No change was seen in careseeking for ARI or in giving fluids during diarrhea.

Treatment and Distribution of Drugs

A central concern of ministries of health is whether community workers can dispense antimalarials correctly. Again, CHWs have been more successful in treating malaria than other diseases. In Kenya, CHWs treated 90.5 percent of “moderate” malaria cases adequately in contrast to 50 percent of ARIs. However

they recommended the correct dose in only 66.7 percent of malaria cases. The integrated program did bring about earlier treatment seeking and a 49 percent reduction in child mortality four years after implementation began.³⁷

Supervision is critical to CHW performance. In the Kenya program, supervisors did not perform any better than the CHWs. In contrast, supervision played a strong role in a similar program in the Sudan. Supervisors from health facilities received the same training as CHWs and visited them every two weeks, observing performance and providing feedback on case management. During the program’s first year, CHWs treated 63 percent of fevers correctly; in the next two years they treated 99 percent correctly.³⁸ Recognition of dangers signs also improved over time.

A program in the Tigray region of Ethiopia from 1996-1998 provides the now classic evidence that community volunteers who focus on both educating mothers and providing drugs can reduce child mortality. The program trained mother coordinators to teach women in their own communities to recognize symptoms of malaria and promptly treat children with antimalarials available from the volunteers. The coordinators were trained with special treatment charts and they also gave black and white versions of these to families to post in their homes. After the first year of the intervention, overall child mortality dropped by 40 percent.³⁹ In the intervention area, 19 percent of child deaths were due to malaria, in contrast to 57 percent in the control area.

³⁵ So far there are no successful examples of programs that allow families to assess and treat their own children. A program in the Gambia found that despite an educational campaign, 64 percent of mothers interviewed said they would give the antimalarial for severe cough, 38 percent for severe diarrhea, and 23 percent for ear discharge. (Menon et al. 1988.)

³⁶ Gilroy et al. 2004 (draft).

³⁷ Ibid.

³⁸ Ibid.

³⁹ Kidane et al. 2000.

Improving Referral

Referral is usually the weakest element of a CHW program (see box page 95). In Mali, referral of severe cases by managers of community drug kits improved following introduction of a referral book and refresher training. Parents of referred children actually took the referral book with them to the facility (where details about treatment were added) and returned it to the community drug kit manager after treatment. One year after introduction of the record books, referral of severe cases rose to 42.1 percent in the intervention group as compared to 11.2 percent in the control. Of those referred, 87 percent actually arrived at the health center.⁴⁰

Integration with Treatment of Other Child Illnesses

The overlap among malaria, ARI, and CDD is a strong argument for integrated assessment and treatment. Because parents recognize and seek care for fever, CHWs known for treating malaria may easily “pull in” children who have ARI. One can also argue that because community-based malaria activities are often supported by national programs (whereas ARI and CDD activities are not) they have a special responsibility to expand algorithms and training. (For more on ARI, see Chapter 6).

Monitoring and Going to Scale

Ministries of health need evidence that community-based programs are improving care and are not leading to an increase in drug resistance. Simple record keeping of cases and treatments can form the basis of good

monitoring. Periodic reviews can highlight prescribing problems. Whenever possible these reports should be fed into the regular health information system. Although many community-based programs are initiated and supported by NGOs, they can only be sustained if they are accepted and eventually integrated into the health system. A steady stream of information on CHW activities and results improves the chances these programs will eventually be absorbed and brought to scale.

Working with Private Providers

Very few mothers go first to public health providers for treatment of malaria-related symptoms. From 50 to 70 percent of children who die never come in contact with the health system.⁴¹ The majority of early treatment for childhood fever is given at home using store-bought drugs. Despite this, efforts to improve communication with families about how to manage fever and give drugs have focused primarily on staff in the public health system.

A few countries have conducted successful interventions to improve both the prescribing behaviors of private providers and their communication with clients. Negotiating changes in prescription practices for malaria currently has several advantages over negotiating changes for other diseases. Programs do not have to convince pharmacists to sell a *cheaper drug* (such as ORS), and the recommended shift is usually toward *purchasing more* of a specific medication rather than less.⁴²

In Kenya, dosage charts for shopkeepers, a novel prescription “stamp,” and practical training had a

⁴⁰ Winch et al. 2003.

⁴¹ WHO 2004.

⁴² As countries promote use of ACTs, both availability and cost will be significant barriers to their adoption and use in the private sector for at least the short to medium term. There are major shelf-life issues with all available ACTs, so stock management will be critical. New concerns introduced by ACTs will be dosing (particularly in places where co-formulated products are not used) and issues around drugs' toxicities. (Lawrence Barat, personal communication)

dramatic impact on correct use of both antimalarials and antipyretics.⁴³ The study found that shopkeepers were willing to adopt a more advisory role with their clients as long as the new practices did not reduce their income. The training also raised their status in the community (see box at right).

One common challenge in working with private providers is to find an efficient mechanism for scaling up. A second program in Bungoma, Kenya, worked with drug wholesalers and their detailers to reach shopkeepers.⁴⁴ The vendor-to-vendor strategy demonstrated the efficiency of drug detailing as a way to reach scale. Seventy-three wholesalers worked with their own shop attendants and mobile vendors to promote proper use of SP as the (newly adopted) first-line drug in approximately 450-500 private drug outlets. Communication tools included a shopkeepers job aid and a client awareness poster. Vendors also reviewed malaria symptoms, treatment advice, and dosage charts. With relatively little “external” input, the public/private partnership improved rates of appropriate prescriptions to greater than 50 percent in the intervention area as compared to 21 percent in the control.

In Nigeria, training of patent medicine vendors (PMVs) was coordinated with the launch of new pre-pack antimalarials. The program scaled up its model during a second phase by collaborating with the professional Association of PMVs (see box page 100).

Other challenges in working with private providers include establishing a monitoring

TRAINING PHARMACISTS IN KENYA

In rural Kenya where pharmacies have almost replaced health centers for preferred malaria treatment, a study of prescribing practices found that shopkeepers rarely asked questions about the child or provided any information about proper doses. Only 4 percent of children in the target area who were given over-the-counter (OTC) antimalarials received an adequate total dose.

Training and materials Between 1998 and 2001, the Ministry of Health and the Kenya Medical Research Institute launched a training program for drug retailers serving a population of around 70,000. The initial four-day training was supplemented by on-site observations and annual one-day refresher workshops. Participants received dosage charts for both antimalarials and aspirin/paracetamol. Another novel communication tool was a collection of rubber stamps depicting the correct doses for children of different ages. Training also covered symptoms of severity and referrals. After the first year, the Ministry’s drug protocol shifted from chloroquine to SP, so that later workshops also focused on the task of introducing a new drug.

Results Training had a dramatic effect on practices of both shop keepers and purchasers of OTC drugs. After training, the proportion of children receiving OTC antimalarial drugs who received an adequate dose rose from 8 percent to 64 percent. Overall, the proportion of children whose fevers were treated with shop-bought drugs and received an adequate dose of the recommended antimalarial *within 24 hours* rose from one to 28 percent during the intervention period.

The most difficult challenge was convincing parents to give any antimalarial, as opposed to an antipyretic. Many children were receiving dangerously high doses of aspirin. This was confirmed by reports by the District Hospital of cases of severe salicylate toxicity. After training, potentially toxic doses dropped from 22 percent to 2.9 percent.

Source: Marsh et al. 2004.

⁴³ Marsh et al. 2004.

⁴⁴ Roll Back Malaria 2002.

INTEGRATING PRIVATE SECTOR TRAINING WITH PRODUCT PROMOTION

In Nigeria, training of commercial drug sellers to improve prescribing practices was integrated with the launch of new pre-packed antimalarials.

Communication strategies promoting the new product also highlighted its availability from patent medicine vendors (PMVs) who had received the training.

Collaboration with the Community In the first phase, USAID's BASICS II project worked through community/government planning groups known as Catchment Area Planning and Action Committees (CAPAC). Each CAPAC includes 20-30 community representatives who advocate for health-related resources and supervise community health promoters. CAPACs serving a total population of around 750,000 helped identify over 800 PMVs operating in their local areas to receive training.

Program staff first conducted a training-of-trainers for selected PMVs followed by one-day workshops organized by the CAPACs in their own areas. Training for PMVs emphasized signs and symptoms of malaria, treatment of children under five with the appropriate first- or second-line drug, referral of children with severe illness to the health facility, and use of ITNs.

Communication Materials The program designed materials for shopkeepers and their outlets. These included job aids, treatment guidelines, a dangler identifying the shops where someone had completed the course, a shop sticker with the program logo, and a certificate of

completion. Radio and billboards also publicized the training. (USAID's HCP project managed the communication program.)

Product Promotion The workshops were coordinated with the launch of prepacked chloroquine and SP through an extensive media campaign including radio spots, billboards, and road shows. Two detailers managed distribution of the prepacks to PMVs in the program area. Prepacks were also supported through USAID (via PSI/SFH).

Results In January of 2004, four months after the intervention began, the percent of PMV clients given the correct dose of antimalarial rose from 9 to 53 percent. PMV knowledge of continuous vomiting as a sign of severity rose from 32 percent to 71 percent; knowledge of convulsions rose from 11 to 45 percent. Unexpected results included a drop in referrals for severe cases and an increase in recommendations for other antimalarials. The program staff believe this last outcome may be due to increasing drug resistance in the intervention area and awareness of PMVs about the problem.

The program was scaled up in other areas through collaboration with the Association of Patent Medicine Vendors. In both models, collaboration with the local and state government officials was considered a key to acceptance by the health system and the PMVs.

Source: Greer et al. 2004.

system and sustaining changes in practice over time. To date most programs have been one-time efforts and involved intensive training (often on a pilot scale) and no long-term follow up.

Summary

Malaria

Behavior change approaches can contribute to both prevention and control of malaria. Major interventions include:¹

- Use of insecticide-treated nets (ITNs) by pregnant women and children
- Case management of childhood fevers
- Intermittent preventive therapy (or “IPT”—for pregnant women, to protect them and the fetus)

In malaria endemic areas, child survival programs will focus on the first two interventions. Attention specifically to *newborn health* should also include links with programs focusing on IPT. That intervention is usually managed by safe motherhood programs (and is not discussed here).

PREVENTION: INSECTICIDE-TREATED NETS (ITNS)

Audiences and Actions in a Nutshell

Families

- Acquire ITNs and use them correctly:
 - Pregnant women and children sleep under ITNs every night
 - Family retreats the ITN about every six months

— Family replaces the ITN after about three years.

- The pregnant woman or mother may have to *acquire the ITN* and is the target user, along with young children
- But husbands are likely to *supply the money* and they must *support ITN use* by these more vulnerable family members

Health Workers and Community-based Volunteers

- Promote ITNs at key moments (ANC visits, when child is treated for malaria)
- Give mothers information about how/when to use ITN (correct use)
- Remind mothers ITNs must be retreated

Shopkeepers

- Give mothers (or other purchaser) information about how/when to use ITN
- Remind purchaser ITNs must be retreated

Community Leaders, Organizations

- Organize and promote retreatment “events” (as well as promote ITN use)

¹ See footnote 3 on page 81 about environmental measures such as larval control and indoor residual spraying (IRS).

Policymakers

- Reduce taxes and tariffs on netting and include treatment kits in essential drug lists

What are the Key Challenges?

ITNs are still a new product as well as a new concept in many countries. Formative research is necessary to understand how to position the product and also understand the behavioral challenges and tailor strategies for particular delivery systems.

- Many families do not understand the connection between malaria and night-biting mosquitoes. They also prefer more familiar products (like aerosols, coils, or traditional methods) for killing mosquitoes.
- ITNs are not widely available and affordable.
- Programs may be focused on access and cost and give little attention to correct *use*.
- Programs may be preoccupied with ITNs and not give sufficient attention to *retreatment*.
- Even where ITNs are available, retreatment kits may not be.
- Behavior and communication challenges (for families as well as providers) will vary according to the local delivery system for ITNs/vouchers. Common models include:
 - Subsidized ITNs sold at health clinics
 - Coupons/vouchers for ITNs distributed at health clinics
 - Subsidized ITNs sold through community-based groups
 - ITNs (or vouchers) distributed free during campaigns
- Communication experts may be asked to support pilot efforts (e.g., large distribution ITNs from a

donor on Malaria Day) or to piggyback onto an immunization campaign with little time to analyze specific behavioral issues or plan beyond demand creation.

How Can Communication Approaches Contribute?

Research

- Conduct research to understand the “competition” and how to position ITNs as a necessity rather than a luxury, as well as key factors regarding *use* in the home and *retreatment*.
- Anticipate and monitor “unintended effects” of demand creation activities (on piggybacked interventions such as ANC or EPI, and on families in nearby areas with no supply of ITNs).

Families

- Position ITNs vis a vis the competition (ITNs kill mosquitoes, prevent malaria).
- Design messages to raise the value of ITNs (not a luxury item but a necessity to be saved for).
- Design communication strategies to promote a “net culture” (ITN use will be seen as the norm).
- Inform families where/how they can get ITNs (or vouchers and how to redeem them).
- Promote (and measure) correct *use* by key target audiences (pregnant women and children).
- Promote (and measure) ITN *retreatment* (see box page 103)

Communities

- Encourage local innovation related to treatment promotion strategies (e.g., organize at a central location on National Malaria Day, incorporate in Boy Scout badges, etc.)

It's the *Insecticide*— Not Just the Net!

After about six months (depending on the number of washings) ITNs lose their potency.

Retreatment with insecticides is essential. But many communication programs have considered this behavior a “down-stream” issue, focusing on getting families to *acquire* ITNs.

Every ITN-promotion strategy must be paired with a retreatment-promotion strategy.

Countries that have achieved high retreatment rates (such as Viet Nam and China) focused on *community* strategies. On specified dates, families are encouraged to bring their nets to a central location for “community dipping.” This is fertile ground for innovative community and communication strategies.

Health Workers and Community-based Volunteers

- Support providers with simple job aids/message guidelines tailored to a specific delivery channel.

Shop Keepers

- Promote involvement in voucher programs where relevant.
- Create point-of-purchase materials and reminders/flyers regarding retreatment.

Advocacy

- Support efforts to reduce taxes and tariffs on net materials and insecticides where these still exist.
- Promote increased attention to *retreatment* strategies, as well as demand creation for ITNs.
- Support efforts to promote both sustainability and equity of ITN availability (a *long-term strategy* for supplying ITNs to all segments of affected population) rather than piecemeal efforts.

TREATMENT: CASE MANAGEMENT OF CHILDHOOD FEVERS

Audiences and Actions in a Nutshell

Families

- Recognize signs and symptoms of malaria and seek treatment promptly.
- Give the right antimalarial, in the right dose, for the right number of days.
- Recognize signs of severity and seek appropriate help promptly.

Private Sector Drug Suppliers

- Sell the right antimalarial in the right doses for children with fever.
- Ask about signs of severity and refer to a health center.

Community-based Volunteers

- Ask about previous treatments (to identify treatment failures) and signs of severity.
- Give or sell the right antimalarial in the right doses for children with fever.
- Recognize signs of severity and refer to a health center.
- Recommend the child sleep under an ITN.

Health Workers

- Ask about previous treatments (to identify treatment failures) and signs of severity.
- Give the right anti-malarial in the right doses for children with fever.
- Recognize signs of severity and treat or refer.
- Recommend the child sleep under an ITN.

Policymakers

- Support strategies that bring treatment closer to families (working with private providers, allowing community health workers to dispense drugs, supporting pre-packing)

What are the Key Challenges?

Careseeking studies have shown that behavioral challenges vary greatly by country and region, and formative research is always necessary to identify primary challenges. Common challenges include:

- Parents may not understand the signs and symptoms of *severe* malaria, and may delay seeking appropriate treatment
- A large proportion of parents may seek malaria treatment in the *private sector*—but most programs focus on *public* providers. (And no private provider programs have reached scale.)
- Private providers often over-prescribe antipyretics and under-prescribe antimalarials; they rarely ask about signs of severity.
- Parents often give inadequate doses, contributing to antimicrobial resistance.
- Due to drug resistance, treatment failure is a common problem. Yet providers rarely ask about previous drug use.
- Referral systems for severe cases are weak.

- Changes in drug policies create confusion among both providers and families.
- Policymakers may be reluctant to promote treatment in the private sector or to give drugs to community health workers.

How Can Communication Approaches Contribute?

Research

- Conduct formative research on careseeking patterns for simple and severe malaria as well as

Dealing with Drug Resistance

Drug resistance has made chloroquine and now SP ineffective against malaria in much of the world. “Caretaker compliance” is typically viewed as the problem. But are other actors and behaviors involved?

Many providers (whether public, private, or volunteers) fail to give parents clear instructions on the proper dose and duration for a child’s treatment. Written instructions may be lacking, or poor, or indecipherable to someone who isn’t literate. The *importance* of giving a full dose is often not emphasized—even if the *instructions* are given.

When *policies* change, even providers can become confused. Clear, written protocols need to be updated and shared. Q&A’s can help.

Convenient *packaging* is helpful. “Pre-packs” with graphic instructions can simplify the concept of “completing” a course of treatment.

“treatment failures.” Identify key problems and any corresponding provider or policy issues.

- Assess behaviors of *public providers* (through exit interviews, observations); identify key problems.
- Assess prescribing practices of *private providers*; identify barriers and benefits to ideal practices.

Families

- Design strategies to promote careseeking from appropriate providers at the right times. Include messages to target the problem of treatment failures.
- Promote the importance of completing a full dose of antibiotics (the right drug, in the right dose, for the right amount of time).

Private Providers

- Support training programs for private providers with skills-based approaches and materials.

Health Workers and Community-Based Volunteers

- Create appropriate job aids (diagnosis and treatment charts, Q&A sheets). Target specific problems.
- Create training materials/approaches and job aids for community-based workers.
- Design and test referral and counter-referral materials to improve treatment of severe cases.
- Improve package design and graphic instruction materials for antimalarials (e.g., pre-packs).
- Create materials to support changes in drug policies (new dosage materials, Q&A sheets).

Advocacy

- Promote strategies that bring treatment closer to families (working with private providers, allowing community health workers to dispense drugs, supporting pre-packing).

6 Acute Respiratory Infections



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Around two million child deaths each year are caused by Acute Respiratory Infections (ARI)—primarily pneumonia. ARIs are responsible for one-fifth of child mortality worldwide, making it the biggest single killer of children.¹ Mortality is especially high in the first six months of life. This makes it an important area of overlap with newborn health. Acute ARIs are also involved in a large proportion of deaths due to measles and HIV/AIDS.² Throughout the last decade, deaths

due to ARI remained constant or even rose in parts of both Asia and Africa.

Every child typically experiences four to seven bouts of ARI each year, many of them mild or moderate.³ Immunization against pertussis and measles protect against some serious infections.⁴ Exclusive breastfeeding is especially important in the first six months to protect young infants who are most vulnerable. Environmental and hygiene practices also

¹ Black et al. 2003; WHO/UNICEF 2004; Bryce et al. 2005.

² Victora et al. 1999.

³ Mortality is caused by Acute Lower Respiratory Infections (ALRI), primarily bacterial pneumonia and also meningitis. Mild and moderate upper respiratory infections include coughs and colds.

⁴ The introduction of vaccines against *H. influenzae* type b (Hib) and pneumococcus will also prevent deaths.

play important roles. A recent study associates handwashing with a potential reduction in ARI incidence of around 47 percent.⁵ The relationship between indoor smoke (especially from cooking stoves) and ARI is also being studied.

A CARESEEKING AND CAREGIVING INTERVENTION

However, effective interventions to control ARI focus overwhelmingly on *management of sick children* with antibiotics. The family must recognize symptoms and respond quickly to assure appropriate treatment. A child not treated can die within two to four days.⁶

Many behavioral issues are similar to those for malaria case management. Home treatment requires knowledge of specific symptoms, prompt action, compliance with a drug regimen, and proper care. *Access to drugs* and to appropriate counseling are critical. Important underlying factors therefore include *community preferences* regarding both treatment and providers. As with malaria, the training given to specific providers, their communication skills, as well as the packaging of drugs and the provision of various support materials, are large factors in “compliance.” Community-health system linkages, especially to support community providers and referral of severe cases, are also key.

At the same time, ARI interventions have had a very different history, and enjoyed a different status from malaria control efforts. One reason is the overlap between the symptoms of these two diseases—and often of the diseases themselves. In malaria endemic areas, children with fever are “presumed” to have malaria. Many of these children also (or only) have

ARI, however. And community workers trained to assess malaria are rarely trained to look for symptoms of ARI. A child brought to the health center should be assessed for both conditions, under the IMCI protocol.

One reason for the emphasis on treatment of malaria and de-emphasis on ARI at the community level despite the high mortality from ARI, is the fact that children in malaria endemic areas may have three episodes of malaria for every one of ARI—making the likelihood of malaria seem more urgent.⁷ Another reason for lack of attention to ARI is the fact that malaria has remained a vertical program (attracting both focus and funding) while ARI has not. Yet another is that ARI symptoms are in some ways harder to identify and assess.

THE VERY SHORT HISTORY OF ARI

The challenges surrounding ARI symptom definition and recognition slowed the processes of developing a clear algorithm, identifying “key practices,” and launching programs. ARI first emerged as a feasible intervention in the early 1980s when WHO developed a protocol for first-level care facilities. Pilot community-based programs followed. In 1992, the *Lancet* published a groundbreaking meta-analysis showing the feasibility and effectiveness of programs conducted by *community-based workers*. Around the same time, WHO published a series of training manuals including a course for community health workers.

However, in 1995, just as some of the first national programs were taking off, donors shifted their attention to IMCI and to *facility-based training*. Most community-based ARI activities lost their funding and many disappeared.

⁵ Luby et al. 2004.

⁶ USAID 2004.

⁷ WHO 2002.

In just the last few years, ARI has started to generate new interest. In 2003, the Lancet published a second meta-analysis of the successful early community-based programs—showing that these interventions reduced pneumonia-related deaths by 36-42 percent and overall child mortality by 20-27 percent, with most deaths prevented among those who are youngest.⁸ In the same year, WHO and UNICEF drafted a joint statement supporting programs at the community level, recommending distribution of antibiotics by community workers and integration with malaria efforts.⁹

These two documents are essential seeds for renewed *advocacy*—providing both the evidence base and the international “call” for programs. However, national and district-level *data* regarding ARI mortality should constitute the most powerful argument to policymakers that they should give substantially more attention to ARI.

PROMOTING POLICIES, ADVOCATING FOR PROGRAMS

Emphasis on the Community

The draft WHO/UNICEF statement identifies three strategies for improving quality of care and access to both care and drugs:

- Improving accessibility and quality of care for children with ARI at *first-level facilities*
- Improving quality of care in the *private sector* (especially in urban areas)
- Increasing accessibility of well-trained *community health workers* who can administer antibiotics and counsel parents

Behavior change and communication strategies

have strong roles to play in supporting, or introducing activities, in all three areas.

Most work to date has been focused on first-level care facilities. Community and provider *links* with these facilities are important for all three strategies. Severe cases must be *referred* through the health system, and health system *support* is crucial to any program that supplies drugs in the community. These are familiar themes from several other child survival interventions already discussed. As for malaria and CDD however, reducing mortality will require bringing treatment closer to the home.

Timely access to antibiotics and to skilled care is central to preventing deaths. The joint statement recommends designing programs that support the role of *community health workers* to identify and treat pneumonia with antibiotics. It emphasizes the importance of adequate *training* and *supervision*, the need for strengthening the drug supply system, and the importance of *partnering* with nongovernmental and community-based organizations to recruit and train CHWs and monitor their ARI-related performance. Such programs are now non-existent in many countries.

Although the joint statement recommends working with *private practitioners* to improve ARI treatment, it also points out the current lack of evidence for effective approaches. In comparison to both malaria and diarrheal disease, we know little about the ARI prescribing practices of private providers and how to improve them. This is another crucial area for work. An important first step is formative research about community careseeking to understand where families actually go for both treatment and advice. Since 50-90 percent of antibiotics are provided by the private sector, interventions with drug sellers, for

⁸ Sazawal and Black 2003.

⁹ WHO/UNICEF 2004 (draft).

GOING TO SCALE WITH A COMMUNITY-BASED PROGRAM NEPAL

In Nepal, a community-based ARI intervention was nurtured from a demonstration pilot to a 14-district program supported by multiple NGOs and incorporated in the Ministry's regular supervision system.

First provide evidence Small controlled pilots (managed by John Snow International and the Mrigendra Medical Trust) first demonstrated that Female Community Health Volunteers (FCHVs) could be trained to detect and treat ARI in areas with poor access to services. The initial pilot, which began in 1987, led to a 28 percent reduction in the risk of death from all causes by the third year of services.

The program tested two models One model provided FCHVs with antibiotics to dispense to parents. In the other, FCHVs gave parents referral slips—but no drugs—for children who needed treatment. An evaluation in 1997 showed that in both models, total case management was correct for 80 percent of children. FCHVs were also successful in determining severity; 93 percent of cases were assessed correctly. However, in the referral group, only 25 percent of referred children were actually taken by parents to the facilities. These data provided stakeholders with evidence that the *treatment model* was effective and preferable in this setting.

Scaling up The first phase of expansion was handled through NGOs. Seven additional districts were added with the help of four international NGO partners. The training program includes a half-day orientation for local leaders and a one-day orientation for mothers' groups. The original IMCI training for health workers was revised to include two days of training on how to supervise FCHVs. This addition of a supervisory link has integrated the ARI program into the regular ministry system. The program has now expanded to 14 districts.

Expanding to private providers Because many families consult traditional healers for treatment of pneumonia, the MOH collaborated in orienting traditional healers from six districts to recognize signs of severity for ARI and diarrhea. After training, 96 percent of the healers said they referred ARI cases to health facilities, whereas beforehand only 35 percent said they had referred.

Source: Dawson 1998; Houston 2001.

example, are likely to be central to rational drug use.¹⁰

A number of countries are carrying out pilots and scaling up programs with private practitioners, and planners should watch for the results—both to learn from their lessons and gather evidence for advocacy efforts. Efforts to improve the ARI-related prescribing practices of shopkeepers may or may not be linked to a focus on malaria-related practices.¹¹ In Nepal, traditional healers have been trained to recognize ARI and counsel families (see box at left).

Attacking ARI at the community level requires a major new effort in many countries, much as the launching of newborn programs does. As for newborn care, a comprehensive strategy might include a phased approach focusing on both *home behaviors* and the *practices* of different *providers*. Depending upon the endemicity of malaria, reducing ARI mortality also requires explicit steps to integrate strategies for the two diseases at the community level (see also page 122).

¹⁰ WHO 2002.

¹¹ See for example Tawfik et al. (unpublished)

Advocacy for New Programs and Protocols

Advocacy for new policies and programs is a crucial first step. These efforts must be careful and very strategic in a way that advocacy for newborn programs, for example, may not have to be due to the role of antibiotics. Ministries of health are rightly hesitant to allow minimally trained providers to prescribe and dispense antibiotics. Moreover, cotrimoxazole, (the first-line treatment in most countries) is taken for five days, making drug compliance particularly challenging.

Stakeholder consensus must be cultivated even for pilot programs. History has shown that ministry involvement and support (even following a well-demonstrated success story), cannot be taken for granted. In the past, designers of at least one small ARI program (who were outside the MOH but hoped their program would be scaled up) mistakenly thought the ministry would appreciate a successful independent trial.¹² Concerns about drug resistance are even more acute than in those early days. Moreover, ministry ambivalence may persist beyond initial program approval. In Malawi, for example, the government at first allowed CHWs to dispense antibiotics and then rescinded its policy.¹³

Short-term donor- or NGO-driven community programs that operate without the full confidence of the health system are likely to fail for several reasons. Community-based programs create a burden on the health system and must be embraced by them in order to succeed. Community workers need *good linkages* with facilities if supervision systems are to operate at scale. These relations must be fostered early. An initial communication plan should include discussions of ARI

morbidity and mortality data with lower levels of the health system, in order to demonstrate how CHWs can actually reduce the workload on facilities and save lives.

Monitoring of community-based ARI interventions is particularly important to provide evidence of rational drug use by both providers and families. This evidence is essential for reassuring policymakers and for identifying problems (as well as best practices) for scaling up. Sharing of data on an ongoing basis allows for a *continuing* process of communication with stakeholders at various level and builds the trust needed for effective advocacy.

Pilot programs are necessary to test approaches. However, some of the early pilots were too labor- or cost-intensive to be run at a large scale. Another challenge is the need to integrate effectively with community programs already on the ground.

The UNICEF/WHO statement recommends building ARI programs on existing structures—in other words, integrating with malaria and diarrheal disease, and to some extent newborn programs. Nevertheless, new programs will require mobilizing resources, adapting and simplifying ARI algorithms, introducing new training and supervision programs, and supporting drug supply systems.¹⁴ Behavior change and communication experts have a particularly important contribution to make in assuring training programs and materials, as well as assessment/treatment algorithms, are culturally appropriate and effective with low literate groups.

¹² René Salgado, personal communication.

¹³ Gilroy et al. 2004 (draft).

¹⁴ Designing and maintaining drug supply systems for community-based programs is a complex challenge not discussed in this document.

RECOGNIZING ARI —THE FUNDAMENTALS

Not Just a Cough or Cold, Not Just a Fever

For both families and providers, *recognizing* children who need ARI treatment is the fundamental challenge.

A common early “warning sign” for ARI is a cough. Most children with coughs don’t need antibiotics, however. A child who needs antibiotics is distinguished by having *difficult or fast breathing*. A child with *severe ARI* may also suffer from noticeable “in-drawing” of the chest.

Agreement on “fast breathing” as the clinical sign of severe ARI and the right trigger for urgent care was a major step in the 1980s. Research showed that first-level care providers and also community volunteers and parents could learn to recognize this as a danger sign.¹⁵ Providers may need to use a watch or a timer, and follow an algorithm with cut-offs for different ages. Parents can often recognize abnormally fast breathing in their children without counting breaths. They do not always understand the seriousness of this symptom though.

Cough is easy to recognize and is a useful sign (or cue) to use as a warning to parents that they should be alert, and to providers that they should count respirations. *Chest in-drawing* is more difficult to recognize and to describe. It is also a sign of severe illness. So communication with parents emphasizes the earliest sign of pneumonia: *fast or difficult breathing*.

¹⁵ Sazawal & Black 2003.

KEY BEHAVIORS FOR ARI CARESEEKING AND MANAGEMENT

The child with ARI depends upon both the family and the provider to act quickly. Good care also depends on the ability of parent and provider to communicate well. Key practices include:

Parent seeks care

- Parent brings a child with cough or fast breathing to trained provider without delay.

Provider treats and counsels

- Counts respirations, checks for fast breathing
- Checks for chest in-drawing (refers if appropriate)
- Gives drugs as appropriate
- Advises mother:
 - how to give antibiotics
 - how to recognize danger signs
 - how to care for the child at home

Parent gives care at home (“compliance”)

- Gives the full dose of antibiotics
- Watches for danger signs and returns if:
 - child has fast breathing
 - child has chest in-drawing
 - child is not able to eat or drink
- Breastfeeds frequently (if an infant)
- Keeps young infant warm
- Offers extra fluids
- Feeds more frequently
- Clears child's nose if it interferes with feeding

This child may have pneumonia

- breathing becomes difficult
- breathing becomes fast
- child is not able to drink
- child becomes sicker

Source: WHO 1999.

Family Behaviors, Provider Behaviors

As with malaria and diarrheal disease, proper care includes a series of steps by both family *and* provider. Protecting the child requires that both carry out key behaviors (see box page 112). The basic clusters of behaviors are:

- Parent acts quickly when child shows danger signs and seeks skilled care
- Provider assesses the child and classifies the illness correctly
- Provider counsels on how to administer the antibiotics and demonstrates how; (depending upon the policy for drugs and referrals, the provider may give the child a first dose of antibiotic and either give the remaining five days' doses for later, or tell the family how to purchase these)
- Provider counsels on danger signs (and when to return if treatment fails or the child worsens)
- Provider counsels on home management (including feeding during and after illness)
- Parent gives appropriate care

Although the parents' behaviors are encompassed by just two steps here, these are really complex clusters of behaviors: *careseeking* and *compliance with advice*. There is little time to act at many points in this series of steps, and many potential weak links in the ideal practices. The weakest links will vary from community to community and according to how the program is designed. Major behavioral challenges are likely to fall into a number of categories:

Symptom Recognition and Interpretation

Symptom recognition and interpretation is a challenge in all programs. In fact, many ARI programs to date have not relied on parents to recognize signs of ARI. Instead, they have focused on "active case-seeking" by

CHWs to identify children who need treatment. This may be easier in the short term than creating a new *careseeking norm* for a symptom that is likely to require *translation* from one set of health beliefs and disease concepts to quite a different one (see discussion beginning page 114).

Delay in Seeking Help

Delay is life-threatening and can be caused by several factors beyond those of symptom recognition. The family may understand that the child is in danger but go to various local providers. Serial careseeking is common for ARI. Or one parent may understand that the child needs allopathic (western medical) treatment, but family decision-making may be slow. (Any decision involving use of money is likely to require involvement by a male family member, for example.) The *age of the child* may be a factor. Many families will not take an infant out of the house for treatment, and this age group is hardest hit by ARI.

Access to Providers and Quality of Treatment

The family must know where the provider is located, have reasonable access, and believe the provider can provide the right treatment. The provider in turn must carry out assessment, symptom classification, proper treatment (and/or referral), and counseling. Responsibilities may also involve actually dispensing drugs. Good training and supervision are crucial in community-based programs (see page 120).

Provider Prescriptions and Parental Compliance

Provider prescriptions and parental compliance are always focal points for concern. Compliance with a drug regimen requires easy access to affordable drugs, good counseling, and appreciation of the importance of *completing the dose*. Many of these issues are similar to those for malaria. In some ARI programs, providers

visit the home and administer drugs. Access and cost issues, in addition to knowledge of correct practices, are key variables in giving a child the *right antibiotic*, in the *right dose*, for the *full duration*.

Treatment and/or Referral of Severe Cases

Counseling on signs of severity (chest in-drawing) and recognition of this sign are almost always weak links. Similarly, both the provider and the parent may face barriers to referral when a child has severe ARI. Families face the familiar costs of transportation and time. They may also have little confidence in the referral facility (see box page 116). For the provider, barriers may begin with lack of skills or confidence in recognizing symptoms of severity. Lack of confidence often goes hand in hand with poor links to the referral facility, and even fear of health system reprisal if a child is referred unnecessarily.

Formative research can help uncover, and monitoring should help track, the potential “weakest links” in the series of ideal steps.

Keeping What’s Important in Perspective

Counseling on Feeding

Many children who have moderate or severe ARI are underweight and undernourished and most are very young. Continued feeding of a child with ARI is very important and can be more difficult if the child’s nose is clogged. Breastfeeding may pose a special problem. Counseling on feeding is therefore crucial. However, as with both diarrhea and malaria, providers are likely to short-change or ignore feeding messages.

Counseling for Mild Cases

All children with ARI have trouble breathing and this may be equally noticeable in mild and moderate cases

if the child’s nose is blocked/clogged. However, focusing on the cold has been a dangerous distraction in the past. Before WHO pinpointed the importance of fast breathing, programs over-emphasized treatment of minor symptoms. The previous version of *Facts for Life* also drew attention to minor symptoms, and many programs still rely on this old resource. USAID programs in recent memory conducted research on how parents blow their children’s noses and even distributed hankies with program logos on them, ostensibly to raise awareness about ARI. Many community programs may still be misdirecting parents’ attention.

Expectations for Mild ARI

If a mother brings her child to a provider for treatment, she typically hopes for the promise of an injection or a medicine. Although drugs are not appropriate for mild or moderate ARI, the average mother will not be satisfied just to learn about danger signs and how to feed her child. If she is worried, she will simply go to another provider in order to get some kind of treatment. The initial provider may also lose credibility in her eyes. Cough and cold remedies can be very important from a mother’s point of view, and providers realize this. Some will prescribe something harmless to satisfy a parent’s need for “medicine” and to retain their trust. Formative research in this area should discriminate among harmful and harmless remedies, and whether primary messages receive attention.

Naming the (Right) Symptoms, Treating the (Right) Disease

Relative to many other child survival interventions, we know comparatively little about how communities perceive important symptoms of ARI, what signs they do associate with pneumonia, and what treatments and

providers they prefer. Beliefs and behaviors may also vary for different ethnic groups in a single area.

For communication programs, these signs are also much more challenging than, for example, the symptom of malaria—*fever*. A “hot body” may be attributed to different causes, but is generally recognized by most cultures. The co-occurrence of fever and fast breathing is another problem. Parents may be used to watching a fever for a few days to see if it gets worse. This can be fatal if the fever is due to ARI.

The sign of true severity for ARI is challenging. *Chest in-drawing* has no familiar label even in western languages and is not as dramatic as convulsion a sign of severe malaria, for example. In some cultures, this movement of the lower chest is even attributed to a stomach ailment rather than to breathing. Finally, parents have not been trained to associate any of these signs consistently with any “western” disease (as, for example, they associate fever with malaria). And they may already be associating the sign with another western term—“asthma,” for example. This will further complicate communication.

An underlying task for all ARI interventions is therefore to create community awareness of specific signs and the need for fast action. The condition also needs a recognized name, or a branding process. A parallel task is to understand the terms families do use, so that providers know how to ask questions, can interpret what they hear, and can give relevant advice. Both of these tasks are crucial behavioral research challenges.

COMMUNITY PERCEPTIONS AND RELEVANT PROGRAMS

Using The “FES”

ARI programs require a translation process between what communities notice and what the health system would like them to notice. Ethnographic research is

FOR ARI, THE LANGUAGE IS THE MESSAGE

Research in several countries has helped uncover *common terms and concepts of illness* associated with ARI by given populations; using these terms during counseling also helps providers give *advice* that speaks to current practice.

Viet Nam Researchers investigated local concepts for the problem of “fast breathing” and found parents commonly used terms that translated closer to “strong or tired breathing.” When new messages were pretested, only 12 percent of mothers were able to recall instructions when the message used a direct translation of “fast breathing;” 27 percent recalled the message when the local terms were used.

Ghana Materials included specific advice about feeding such as “Give more fluids such as ZOMKO and increase breastfeeding.” Since mothers were concerned about cough, home treatment also emphasized a *nutritious* remedy: “Soothe the throat and relieve the cough with herbal infusions mixed with peanut butter.” Messages also warned against specific harmful practices: “Do not give your child Rubb or Chinese Rubb mixed with water to drink.”

Pakistan Research revealed that among certain ethnic groups in the Northwest Provinces opium is a traditional remedy for suppressing coughs. This masks symptoms and can be dangerous to a child (and especially an infant). Program messages discouraged this remedy.

Sources: WHO 1999; WHO 1995.

often a necessary part of formative research for ARI. WHO has developed a focused ethnographic assessment tool (FES) that can be completed in six weeks.¹⁶ It helps investigate social and cultural aspects of ARI household management: signs parents commonly associate with pneumonia, the terms they use to describe these and the concepts behind them; how they perceive severity; and home treatments that have both positive and negative consequences.

The FES also looks at aspects of careseeking: when parents decide to go for help; who makes this decision; whom they consult, and in what order. As with malaria and diarrheal disease, behavioral research should look at the practices of both *parents* and community *practitioners*. The FES includes methods for interviewing pharmacists about theoretical cases in order to understand their prescription practices, for example.

Videotapes of children with specific symptoms have been invaluable in community ARI research to elicit parents' terms and treatment practices.

Feeding Behavioral Research into Programs

Planners should use the results of research to help design or refine both *communication strategies* and *training programs*. Communication experts can help incorporate local terms and concepts into:

- Messages for communities about when to seek care
- Training materials for health workers (e.g., case examples and role plays) using symptoms and careseeking patterns commonly described by parents

¹⁶ WHO 1995.

FERTILE GROUND FOR FORMATIVE RESEARCH

The FES provides guidelines for investigating a number of critical questions in addition to the *terms* families use to describe symptoms of ARI and *the disease concepts* they associate with them. Among these other critical questions are:

ARI household management Who takes care of the child with ARI? What are feeding practices? What home remedies are used? Do families purchase antibiotics? What are mothers told by drug sellers about drug treatment? How is home treatment of a young infant different from that of an older child?

Careseeking Who decides when a sick child needs treatment outside the home? Who decides which practitioner to use? Who takes the child? What is the sequence and timing of careseeking? How does this vary by perceived severity of illness and age of child? What are the most common reasons for delay (for example, going to a particular provider first, or concern about the need to pay for drugs)?

Family expectations When do mothers consider a medication has failed and another treatment is necessary? When do mothers stop giving a medication? (e.g., Do they complete a course of antibiotics or only give it until the child is better?) What do mothers expect when they seek care for a child with ARI? How rapidly do they expect improvement? What other factors influence compliance with medication? What are the factors that influence when a mother will return or go to a health center if a child's condition worsens?

Communication What are maternal expectations regarding cough and cold remedies? How important is it to give a remedy in a clinic visit?

Source: WHO 1995.

- Face-to-face counseling (especially regarding signs of severity)
- Adaptation of household morbidity and treatment surveys

Local practices should also provide the basis for modifying the IMCI generic case management/ treatment “box.” Counseling requirements may seem straightforward: the provider should counsel the parent about *signs of severity*, about how to give the child *antibiotics*, and how to care for the child at home (including *feeding advice*). But instructions about home care in particular can be adapted¹⁷ so that:

- Advice is phrased in *local terms* (using common names for signs)
- Superfluous advice is deleted (any practice that is already a local norm)
- *Related illnesses* that the community typically seeks help for elsewhere (e.g., from a traditional healer) are specifically mentioned
- Local practices that are *helpful* are reinforced
- Warnings are given against common *harmful* practices

ELEMENTS OF COMMUNITY-LEVEL PROGRAMS

Introducing “the Disease” and the Service

Bringing services to those who are most vulnerable requires *strong preparation* at the community level. Communication approaches can strengthen several aspects of community introduction. Strategies include:

- Creating strong links with, and buy-in from, the local *health system* in order to support supervision and referral

- Engaging *community leaders* to raise awareness of ARI mortality, symptoms, and services
- Designing activities with *local networks* (such as women’s groups) to promote awareness of services and knowledge of ARI symptoms
- Working with *community members* to design messages and materials that will improve knowledge and promote use of services
- Designing strategies to *motivate* CHW involvement over time

A successful ARI program in Nepal incorporated a strong educational component into existing women’s groups activities. The local community volunteer visited the groups personally and used tailored materials to help explain the new service as well as the signs and symptoms of ARI. Like all community-based programs, workers are more apt to be trusted if they are from the community. This is particularly true for services focusing on very young children. In India, for example, program planners found that rural communities had more confidence in TBAs with no education at all than in paramedics who lived outside the area and visited infrequently (see box page 118).

Promoting a new service is easier than introducing a new worker. An integrated ARI, malaria, and CDD program in Kenya spent most of its initial efforts training a new cadre of CHWs in their counseling/treatment practices and failed to adequately introduce the workers themselves. Although each CHW was responsible for just eight to ten families, after two years of implementation, community awareness was still not satisfactory. Among parents whose children had died and had *not* sought help from a CHW, 26 percent said they were not aware of the worker.¹⁸ As always, communication planners must

¹⁷ WHO 1995.

¹⁸ Gilroy et al. 2004 (draft).

find ways to both call attention to and celebrate *CHW contributions*.

Drugs, Messages, and Target Audiences

Many of the central issues surrounding ARI concern the antibiotics themselves: *where* they are available, *how reliable* the supply is, and what they *cost*. The importance of different *audiences* changes according to the program model. If families have to pay for drugs, messages should include male decision-makers. In one African country, consistent cost information was not disseminated aggressively enough to the community; CHWs felt obliged to give their drugs out free and incurred large debts.¹⁹

Messages about compliance will also vary depending on the source of drugs. If drugs are only available from a community provider, dosage information and the importance of completing the dose can be stressed in *counseling*. If drugs for ARI are often acquired elsewhere in the community, or if families have to buy drugs, barriers to compliance may be complex. Audiences and message strategies must be tailored to local careseeking practices. *Appropriate prescribing information* should ideally be targeted to all popular practitioners or drug sellers. As mentioned earlier, this is an important area for research. Minimum communication aids include simple dosage instruction charts and key message reminders, especially to ask about danger signs and refer if appropriate.

Strategies for Infants and Neonates

Careseeking is often different for children under one and particularly for newborns. Specific messages, and often intervention strategies, are needed to promote care for those most vulnerable. The highest proportion of deaths are among the youngest children, who are least likely to be taken from the home even when seriously ill. Nevertheless, some of the highest mortality reduction in community-based programs has been among the youngest children—including neonates.²⁰ Several Asian countries—in particular Bangladesh and India—have developed effective programs that focused on *case-seeking* and trained local TBAs to assess and treat infants in the home²¹ (see box page 119). Messages about danger signs for ARI must also be tailored for this age: non-specific danger signs such as not feeding or feeding poorly should prompt families to seek help urgently.²²

PRACTICAL, SKILL-BASED TRAINING AND SUPERVISION

Both the *clinical* and the *communication* skills of providers are key factors in saving lives. Training programs for facility-based as well as community health workers (CHWs) must be competency based, behavior based—involving modeling of behavior and role playing—and practical. Training cannot be limited to the classroom. Providers need supervised practice assessing children, deciding how to treat them, counseling parents, and filling out record forms.

Observation of real cases is important for ARI. Many programs have used videos of children with

¹⁹ CARE 2003.

²⁰ Sazawal and Black, 2003, report a summary effect of 27 percent on neonatal mortality.

²¹ WHO has not approved cotrimoxazole for newborns. However, pilots have used the drug apparently without harm. *All* pilot programs need to collaborate with and be supported by different levels of the health system, particularly because of the sensitive issues regarding drug use. (René Salgado, personal communication.)

²² USAID 2004.

TRAINING TBAs TO TREAT THE MOST VULNERABLE

In Gadchiroli, India, a community-based ARI program carried out by the Indian NGO, SEARCH, initially recruited paraprofessionals—female village health workers and male drug dispensers. However, because the highest ARI mortality was among neonates, a pilot was launched to test whether TBAs could diagnose and manage ARI in the home.

Designing a program for non-literate providers The TBAs had no formal education. Many could not count higher than 12. However, they traditionally have access to neonates whereas the other workers do not, and families trust them almost as much as the highly trained village health workers.

Special materials and a unique training program were developed for the group consisting of six sessions of 90 minutes each. The TBAs were trained in an informal group setting using games, role plays, and pictorial aids illustrating correct antibiotic doses. They used mnemonic chants to help memorize doses. A videotape taught how to count respiratory rates and recognize chest in-drawing. The training was a strong emotional experience for them, allowing them to associate freely with colleagues in a supportive setting. They received no honorarium or incentives.

Although the TBAs could not count respirations in the usual way (which requires counting up to

at least 60), they gained good visual judgment of symptoms. In the first year, supervision monitoring showed they correctly diagnosed 59 percent of cases.

Improvements with a tailored “timer”

To improve their ability to assess symptoms, the program invented a device that “counted” for them. It consisted of a one-minute sand-timer and an abacus with two rows of beads: one for infants up to 2 months, one for those 2 to 11 months. After counting each group of 10 breaths, the TBA was to move one bead on the appropriate scale. The beads thus provided visual evidence of whether infants had “fast breathing.” After the breath counter was introduced, correct diagnoses rose to 82 percent.

Results By 1991, after three-and-a half years of intervention, mortality due to pneumonia among neonates had declined by 44 percent. Total neonatal mortality fell by 20 percent. Community acceptance of the program was high. TBAs were also the only community-based workers in almost half of the villages. The evaluation also noted that tremendous effort is required by the health system to work productively with TBAs because of their low educational and social status.

Source: Bang 1994.

different symptoms to teach the signs of ARI and to demonstrate how to count respiratory rates. The videos used for ethnographic research can also be used in training.²³ In Bangladesh, trainers/supervisors initially accompanied community workers to the field so they

could demonstrate actual case management.

ARI assessment requires specific skills and confidence in performing them. The cornerstone is counting respiratory rates and classifying symptoms according to the child's age.²⁴ Fast breathing is harder

²³ WHO 1992.

²⁴ WHO 1991. Respiration cut-off rates for ARI are: 60 breaths per minute for children under two months; 50 breaths per minute for infants 2-11 months; and 40 for children 1-4 years.

to recognize in malnourished children, who may not have the strength to breathe harder.²⁵ Programs described in the Lancet study mentioned in the beginning of this chapter, as well as more recent interventions, have demonstrated that low literate volunteers can learn these skills.²⁶ But training must be adapted to the educational level of the learners and other aspects of the local context.

The high dropout rate typical of many CHW programs, combined with the complexity of ARI treatment skills, make both *supervision* and *refresher training* particularly important. An added problem is that workers who have small catchment areas (and don't see frequent cases) simply lose diagnostic skills. In Papua New Guinea, only 63 percent of CHWs maintained competency one to four years after training. This was attributed largely to lack of opportunities to practice.²⁷ In Kenya, refresher training was conducted at a district hospital so CHWs could see cases.

A number of programs have found that CHWs have most difficulty assessing severe cases.²⁸ Children with chest in-drawing may not be referred. This may even be reflected in CHW records. The reasons for non-referrals should always be analyzed. One program found that CHWs were reluctant to refer children because they were afraid of criticism by the health facilities if a diagnosis was incorrect. Poor skills, and poor relations, require different supportive strategies.

MATERIALS AND THE MARVELOUS TIMERS

ARI requires unique materials for both parents and

providers. Generic materials created by donors will have limited use at the local level. The basic algorithm needs to be adapted to the local terms and also to the abilities of the users. Communication experts can help design simple flow charts to help providers classify signs and symptoms, and recommend and record drug dosages. Counseling cards with carefully pretested pictures of specific symptoms, explained with terms used by the community, have proven useful in several programs.

Counting respirations is possible with a watch. In the 1980s, UNICEF created a simple timer used in some of the early ARI programs. Recent programs have also used timers. A timer helps the provider determine cut-off rates for fast breathing. It increases the confidence of both providers and families. It also bestows status on the owner. In both Honduras and Nepal, timers were perceived by CHWs as rewards, and by communities as evidence of their skills.

The program in India working with TBAs developed a special mechanical timer for them since many could not count higher than 12. Although TBAs were actually able to recognize fast breathing in infants fairly accurately since they were accustomed to this age group they did better when the counters were introduced (see box page 121).

SUPERVISION

Monitoring Performance

Supervision has played an important role in the most effective programs. The type of supervision conducted may be as important as the frequency. In Honduras, community workers were visited only three times a

²⁵ Pio 2003.

²⁶ Sazawal and Black 2003.

²⁷ Gilroy et al. 2004. (draft)

²⁸ WHO 1999.

GOOD SUPERVISION ALLOWS FOR DROPOUTS AND CATCH-UP

The Bangladesh Rural Advance Committee (BRAC) launched a pilot community-based ARI program in 1992 with CHWs who had about five years of education. By January of 1999, the program had expanded to 2,500 volunteers, each serving 100-120 families.

Uneven recruitment Some early problems with dropouts meant that only about 57 percent of CHWs received the original three-day basic training. The program provided a day of refresher training once a month for the first three months to bring new recruits up to speed quickly. Supervision by BRAC paraprofessionals played a particularly important role.

Results Supervisors were expected to visit CHWs once a month and discuss problems. In fact supervision improved the accuracy of CHW performance more than four-fold over the course of the pilot period. An evaluation in 1999 showed that CHWs diagnosed 89 percent of cases accurately and provided correct treatment 87.2 percent of the time. Among those who received the basic training, overall accuracy was 90.9 percent, and among the late starters, 86.1 percent. As in Kenya (see box page 123) the CHWs performed least well for the most severe cases.

Flexible supervision The evaluation recommended that supervision be tailored to individual needs—with more frequent visits for volunteers who have less training or are having difficulty. This allows for flexibility in dealing with the common problem of dropouts and the continuing need for new recruits.

Source: Hadi 2003.

year. In the Bangladesh program, supervisors visited CHWs every month and consulted on unresolved cases (see box at left). In the Sudan, the supervisor visited every two weeks and not only observed the CHW and reviewed her reporting forms, but talked to the village chief about community acceptance. A standard checklist helped the supervisor assess case management and provide feedback.

In Kenya, supervisors did not perform much better in the field than their respective CHWs.²⁹ Although supervisors are often health workers who once received basic IMCI training, they may not have had an opportunity to observe cases or practice skills. It can be useful to invite supervisors to the CHW training. Training opportunities are usually perceived as incentives. Joint training can also create a foundation for good relations.

Monitoring Forms and Data

The CHWs' records are typically the focal point of supervision. Were observed symptoms properly classified? Who got what drugs? What was the outcome? If simple and well designed, these forms provide a good basis for both case review and problem solving. They can also be used to provide input into a community-level Health Information System (HIS). A program in Rwanda has the CHW fill out a short form of just 12 questions each month.³⁰ The forms are compiled by health center managers for discussion at a monthly meeting. Results are fed into the regular HIS.

The conundrum for all of these programs is that supervision is hardest where it is most needed. Community-based ARI programs are vital in areas that have limited or no access to health facilities and

²⁹ Gilroy et al. 2004 (draft)

³⁰ Ibid.

where supervision may be next to impossible. ARI programs are therefore especially dependent on *retention of CHWs* so that the training and experience they gain is not quickly lost.

VARIATIONS ON EFFECTIVE CHW PROGRAMS

Behavioral challenges vary by ARI program model. Key variations include:

- Is case identification in the community “active” or “passive”?
- Do CHWs only treat cases, only refer cases, or do both?
- How are drugs dispensed?
- How many illnesses does the CHW assess and treat?
- What are the age groups the CHW is meant to serve?

Passive and Active Careseeking

The majority of effective programs described in the 2003 Lancet meta-analysis were based on an active case-seeking model. In other words, the CHW was responsible for visiting homes on a regular basis and detecting sick children. In many cases, CHWs also provided drugs in the home.

In a successful program in Bangladesh, CHWs visited every house in their catchment area on a monthly basis. In the India program using TBAs, women visited the homes of infants every two weeks. If a child needed antibiotics, the TBA came back every day to give the dose herself. The only African program described in the Lancet (conducted in Tanzania) also involved active case-seeking.³¹ So far most community-

based ARI programs have been carried out in Asia and there is need for more evidence of effective program models in Africa.

Active case-seeking is labor intensive and requires high commitment. How realistic is this kind of program on a large scale? Active case-seeking can be a way to *introduce* a program and to *educate* communities. It may be necessary to create initial awareness and also demand for services. In the Nepal program, community members did gradually begin to seek out the CHWs for treatment. An evaluation in one district showed that the percent of children treated who were brought to the CHWs by parents rose from 15 to 56 percent over three years.³²

Treatment vs. Referral

Once a case is identified, the provider’s responsibilities can range across a continuum from referral to varying levels of treatment. Because cotrimoxazole is taken over five days, compliance is important over a relatively long period (longer than for malaria treatment, for example).

Not surprisingly, programs in which the CHW can provide the drugs and in which she has more oversight in the home are more successful. These programs are also more intensive and invite additional government scrutiny.

The need for *demonstration* and *consensus* mean ARI programs cannot always start at scale. The program in Nepal was first launched as an operations research project to test the effectiveness of two different strategies. In one approach, the village health worker was equipped with a timer and assessed respiratory rates and referred children to the health facility for treatment. In the other group, CHWs could also give

³¹ Sazawal & Black 2003.

³² Houston 2001.

AN INTEGRATED COMMUNITY ARI - MALARIA - DIARRHEA PROGRAM

In Kenya, CARE initiated an *integrated* community-based program in the mid 1990s. Literate volunteers were selected by their own communities. They received training with an IMCI-like flowchart to assess and treat ARI, malaria, and diarrhea—conditions that often overlap. They followed a separate algorithm for infants under two months old. They also had various health education duties, for example providing counseling on family planning and HIV/AIDS.

The three-week training included role playing, videotaped examinations, and actual practice at a district hospital. The CHWs all received watches with second hands for counting respirations. CARE also provided job aids including registers and flowcharts.

Performance in CDD A source of confusion for the CHWs was that treatment guidelines for dehydration changed twice during the program. The evaluation showed they had most trouble detecting signs of severity for diarrhea. They assessed dehydration due to diarrhea 75-84 percent of the time.

Performance in Malaria Their performance was best for malaria; 90.5 percent of their

assessments were accurate. However, they prescribed the right antimalarial dosage 66.7 percent of the time.

Performance in ARI CHWs remembered to ask parents about any history of cough or difficult breathing 80 to 88.2 percent of the time. They assessed severe pneumonia correctly 58.8 percent of the time. Difficulties were mostly due to the challenge of recognizing chest in-drawing.

Reluctance to Refer A review concluded that the CHWs performed well in most areas except in interpreting signs that would require referral. If they had doubts, they tended to choose less severe classifications, possibly because of fear they would be criticized by the health facility staff for mistakes.

Simplify, Simplify The complexity of the guidelines was a problem. They were six pages long and required 12 assessment tasks per child. The evaluation concluded a more simple flowchart would be more appropriate for the CHWs.

Sources: Kelly et al. 2001; CARE 2003.

antibiotics to children they identified as having ARI. An evaluation of both approaches demonstrated the greater effectiveness of allowing CHWs to actually dispense drugs, and was crucial in convincing the Ministry of Health to change its policy³³ (see box page 110).

In remote areas, referral isn't always possible. Where referral *is* a part of the program, different

strategies can support families. In Peru, children with ARI received only the first dose of antibiotic from a community worker and were then referred to a facility. The referral was supported by a referral slip and also “counter-referral” slip for the parent to have filled out at the facility and brought back to the CHW. In this program, the CHW also supported the child in getting to the referral facility—helping with transportation and even radioing ahead to the facility.

33 Ibid.

Few programs can support referral in such a material way. However, a simple *counter-referral* form is essential to let the CHW know how the child was treated and to follow up.

Integrated Multiple-Disease Model

In malaria endemic areas, children often have both malaria and ARI at once. A study in Malawi that looked at the overlap between malaria and pneumonia found that 96 percent of children who met the clinical definition of pneumonia also met it for malaria.³⁴ The reverse is not as common. However, this overlap makes integrated assessment important. A WHO meeting in 2002 stated that it is unethical for community-based malaria programs not to include assessment and treatment for ARI.³⁵ It is common for a parent to bring a child with fever for treatment and then wait for the antimalarial to work. Critical days are lost. The death of such a child may also be attributed to drug treatment failure rather than to ARI.

Only a few countries have implemented community programs that assess both ARI and malaria. Kenya and the Sudan are two (see box page 123). One advantage of integrating with existing community-based malaria programs is that parents who don't recognize fast breathing but *do* recognize and act on *fever* will have their child assessed for ARI. Assessment in an integrated program requires a more complicated algorithm and training. The Kenya program attempted to teach CHWs an algorithm very similar to the one used by IMCI. Mortality dropped in the early period of the program.³⁶ However, the steps proved complicated for CHWs. An assessment concluded that

simplicity is key. One reviewer recommended teaching basic symptom and counseling skills but reducing the basic algorithm:³⁷

- If fever, give an antimalarial
- If fast breathing, give an antibiotic
- If diarrhea, give oral rehydration solution

And reducing referral messages to:

- If there are any other problems, send the child to a health facility
- If the child is not better the next day, send the child to a health facility
- If the child looks very sick, send the child to a hospital immediately

Of course, neither the practices nor the messages in this list are sufficient. Providers must always counsel on signs of severity and on dosage instructions. And for each of these diseases, some of the messages that are most often overlooked may be crucial. The lesson, however, is that ARI may seem to be a complex intervention, but for programs to be effective, key practices must be limited and messages must be memorable—for community providers as well as families.

³⁴ WHO 1995.

³⁵ WHO 2002.

³⁶ CARE Kenya 2003.

³⁷ Kelly et al. 2001.

Summary

Acute Respiratory Infections

Treatment Behavior change approaches focus primarily on treatment of Acute Respiratory Infections (ARI). Treatment consists of case management of illness: careseeking and caregiving.

Prevention Exclusive breastfeeding is especially important to protect young infants, who are the most vulnerable to death from pneumonia. Immunization against pertussis and measles protect against some serious infections.

Environmental health projects have investigated a number of other prevention behaviors—for example, ways to limit indoor smoke. Handwashing can also play a significant role in reducing infection.

TREATMENT: CARESEEKING AND CAREGIVING

Audiences and Actions in a Nutshell

Policymakers

- Adopt policies that give increased attention to ARI, including:
 - Management of ARI at the community level (CHWs and private providers)
 - ARI in the context of Newborn Health
- Support strategies that bring treatment closer to families (allow community health workers to dispense antibiotics, work with private providers, and support pre-packing)

Families

- Recognize signs of ARI and seek treatment promptly
- Give the right antibiotic, in the right dose, for the right number of days
- Recognize signs of severity and seek appropriate help promptly
- Encourage food/fluids during illness and give an extra meal during recuperation

Private Sector Drug Suppliers

- Sell the right antibiotic in the right doses for children with rapid/difficult breathing
- When parents ask for drugs to treat childhood fever, ask about symptoms of ARI

Community-Based Volunteers

- Give/sell the right antibiotic in the right doses for children with rapid/difficult breathing
- Recognize signs of severity and refer to a health center
- Counsel parents about signs of severity and feeding/fluids during illness, recuperation

Health Workers

- Give the right antibiotic in the right doses for children with rapid/difficult breathing

- Recognize signs of severity and treat or refer
- Counsel parents about signs of severity and feeding/fluids during illness, recuperation

What are the Key Challenges?

Many community-level ARI programs lost funding or disappeared with the introduction of IMCI. Program advocacy, formative research, training, and communication program design may all have to be launched as if this were a new health area.

- Policymakers and health system staff may not understand the need for community strategies or may not trust community workers to dispense antibiotics.
- In malaria endemic areas, presumptive treatment of fever may divert attention from ARI. Even when cases are “seen,” they may be “missed” (see box at right).
- Signs of ARI are harder for both parents and community workers to recognize than those of other major childhood diseases.
- Formative research is essential to understand local terms for symptoms and illness concepts as well as careseeking. Patterns may vary by ethnic group.
- Mortality from ARI is highest in the first six months of life, but many families are reluctant to take young infants out of the home for treatment.
- Although 50-90 percent of antibiotics are provided by the private sector, only a very small number of projects have worked with drug sellers regarding ARI.
- Referral systems for severe cases are often very weak.
- Parents often give inadequate doses of antibiotics, contributing to anti-microbial resistance. (Cotrimoxazole, the first line drug, must be taken for five days.)

Why is ARI a Special Problem in Malaria Endemic Areas?

In malaria endemic areas, children with fever are “presumed” to have malaria. But many of these children also (or only) have ARI.

In many parts of Africa, it may even be difficult to know how many children are dying of ARI. Many ARI deaths may be attributed to malaria, or to malaria “treatment failure.”

Why? Incidence of malaria is higher than ARI in these areas, so assessing /treating malaria may seem most urgent. Malaria is much better funded than ARI. And community workers trained to assess malaria are rarely trained to look for signs of ARI.

Fever and fast breathing often occur together. Parents are used to watching a fever for a few days to see if it subsides. But delay can be fatal in the case of ARI.

In 2002 WHO concluded that it is unethical for community-based malaria programs not to include assessment and treatment for ARI.

- Protocols may be outdated, especially at the community level, and the importance of fast/difficult breathing may not be emphasized. (Some programs still focus on blocked /clogged noses.)
- Most successful programs to date have relied on active *case seeking*, which is labor intensive.

How Can Communication Approaches Contribute?

Behavior change approaches can contribute at multiple levels: advocacy for needed programs, strategies to educate parents and promote use of CHWs, and improved training programs and materials for providers at several levels.

Advocacy

- Conduct advocacy with health policymakers for programs that bring treatment closer to communities (via both community health workers and private providers).
- Improve acceptance of existing programs by feeding monitoring data back to policymakers to demonstrate effectiveness/safety of interventions.
- Encourage local health system support for community programs (highlight monitoring data that shows decreased burden on health system, etc.)
- Promote collaboration with newborn programs. Strategies for newborns require active caseseeking because most are not taken out of the home.

Research

- Conduct focused ethnographic research to investigate family practices and local terms. Integrate these in training and communication materials.
- Conduct formative research on prescribing and counseling behaviors of both public and private providers. Analyze barriers/benefits to ideal practices from their perspectives.

Providers and Health System Linkages

- Support providers with simple materials/messages to improve counseling skills.

- Create job aids for health workers and community volunteers (diagnosis and treatment charts).
- Support training programs for health workers and community volunteers with participatory and skill-based approaches. Observation of real cases and practice are both key. Videos are very helpful.
- Help design training programs for private providers; support with simple reminder materials, point-of-purchase materials.
- Promote strong links between community volunteers and the health system. Including supervisors from the health system in training for CHWs will improve their skills as well and can be a draw for them.
- Design and test materials to improve referral and counter-referral.
- Help design simplified, low-literacy algorithm for integrated ARI, malaria, and CDD programs.
- Strengthen supervision systems with behavioral approaches, streamlined materials such as checklists.

Families/Communities

- Design activities to educate communities about signs of ARI and the need for seeking appropriate care without delay. Use local terms/illness concepts.
- Design strategies to promote careseeking from appropriate providers (e.g., CHWs if they are trained and have drug supplies). Focus on family members who are in charge of care decisions. (Care outside the home may require approval by males.)
- Promote the importance of completing a full dose of antibiotics.
- Design incentives, motivation strategies to help retain CHWs.

7 Nutrition



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Although nutrition appears last in this document among six child survival interventions, it easily deserves to be first. Nutritional deficiencies contribute to a large percentage of deaths associated with the other interventions discussed here. The World Summit child survival goals for 2000 focused on moderate and severe malnutrition. However, the public health community has recently turned its attention to the importance of *under-nutrition*—a far more pervasive problem but at the same time one that is harder to detect. In many countries, under-nutrition is the norm and “looks” normal to mothers and providers alike. Approximately

80 percent of nutrition-related mortality is associated with this mild form.¹ The overall contribution of nutritional deficiencies to child health problems is shown in the box on page 130.

Poor nutrition is most harmful early in life, particularly between about 4 to 12 months. Damage during this period cannot be fully repaired in later years. This realization has led to a narrowing of focus in many nutrition activities (for example in Title II supplementary feeding programs). During their first two years children are most vulnerable to diarrheal disease and ARI—and to the cycle of infection, poor nutrition, and re-infection. For a mother, this is a

¹ WHO, BASICS, UNICEF 1999.

period of continuous challenges: beginning with initiation of breastfeeding, exclusive breastfeeding through six months, then timely introduction of complementary foods, and gradual transition to adult foods.

A key aspect of nutrition is recuperation from disease episodes. As we have seen elsewhere in this document, feeding during and after illness is integral to home management of infections and is a counseling priority. Nevertheless it is often virtually overlooked by health systems, and the impact of communication in this area is rarely examined.

CHILD DEATHS ATTRIBUTABLE TO UNDERWEIGHT

Disease	Attributable %
Diarrheal Disease	61 percent
Pneumonia	52 percent
Malaria	57 percent
Measles	45 percent
All under five deaths	53 percent

More than 80 percent of malnutrition-related deaths occur in children who are mildly or moderately underweight.

Source: Black 2003.

Our understanding of the technical, social, and behavioral aspects of nutrition is always evolving. Research regarding zinc, for example, has only recently changed recommended treatment practices for diarrhea (see Chapter 4). Recent evidence-based guidance on feeding options in the context of reducing mother-to-

child transmission of HIV helped clarify how to approach many highly personal decisions and practices regarding feeding during the first six months of life. Complementary feeding—one of the most complex family behaviors in all of child survival—is finally becoming navigable in terms of “key practices.” A Guidance by PAHO/WHO in 2003 covers eight different aspects of feeding for four age ranges from birth to two years. One of the most important themes of the guidance is that nutrition is not simply (or even primarily) about food but about *care*. Nutrition is a poverty issue. But the constraints go beyond those of food security and cash flow. Consensus on indicators for this constellation of behaviors is just emerging.

Child nutrition has been approached through a vast array of interventions. Often these have been tackled by programs launched in parallel to child survival efforts, and even in parallel to each other. One reason for this fragmentation is the sheer breadth of the science involved. Another is the varied partnerships required. Behavioral challenges are the most diverse of any health area—ranging from the straightforward promotion of twice-yearly vitamin A capsule supplementation, to strategies encouraging changes in daily food preparation and consumption, to combined nutrition/infection control activities targeting deficiencies (e.g., anemia), to public-private collaborations to fortify staple foods.

This document cannot do justice to these issues. One clear imperative of child survival programs is to *integrate* an emphasis on priority nutrition behaviors within both health system and community approaches to child health. We offer here only a brief overview of the need to advocate for nutrition; the challenge of incorporating nutrition in clinic- and community-based programs; and an outline of behavioral and communication issues related to several major intervention areas mostly likely to be incorporated into child survival programs.

ADVOCATING FOR NUTRITION

Ironically, nutrition is often a low priority in the Ministry of Health. The national nutrition policy may be out of date or may exist only on paper or not at all. Advocacy is generally a necessary first step for any nutrition intervention. Decision makers must be convinced of the epidemiological need, the feasibility, and the cost effectiveness of new directions. Several approaches have been effective:

- Ministries of health, agriculture, education, women's affairs, planning, and finance all have a stake in nutrition. Improvements in nutrition can be linked to quantifiable changes meaningful to those sectors—including educational outcomes, economic productivity, as well as mortality. International data can provide powerful arguments for new and scaled-up efforts, but projections with a country's own statistics are crucial. The PROFILES advocacy process, which uses computer modeling incorporating a country's own data, can bring together partners to focus on the potential benefits of investing in specific interventions.
- Regional networks (such as the West Africa Nutrition Focal Points) can also focus attention on priority areas when governments are slow to make commitments.
- NGOs often support community nutrition initiatives long before these are integrated into the health system; coalitions of these partners can catalyze government concern.
- The science of nutrition is always advancing. Protocols and pre-service training must be constantly reviewed and revised. While the

complexity of nutrition can be a burden for programs, it can also be used as a helpful “hook” for gaining the attention of medical decision-makers. The science of breastfeeding; the science of vitamin A and zinc; the science of infant feeding options in the context of HIV/AIDS will continue to require state-of-the-art updates—these opportunities should be capitalized on to raise interest among potential partners and the public.

Nutrition is a lifecycle intervention. The girl child whose growth falters during the first two years of her life is additionally compromised during adolescence, often becomes pregnant too young and too often, and brings low birth weight babies into the world. Although the health system may have any number of chances to intervene, many or all of these are likely to be missed. One of the challenges is to bring together the diverse stakeholders in this process and articulate a coherent overall strategy. Nutrition seems to belong everywhere and yet nowhere. A related challenge is to know the most effective *entry points* for nutrition interventions/messages and consider whether nutrition itself can serve as a platform for other child survival practices. The next section describes three different frameworks for nutrition approaches.

INTEGRATING NUTRITION IN CHILD HEALTH AND COMMUNITY-BASED PROGRAMS²

Minimum Program Elements

The Essential Nutrition Actions framework, or ENA, focuses on the behaviors of pregnant and lactating women and children under two years.³ The framework overlaps with safe motherhood, newborn care, and child survival. For policymakers and for providers,

² HEARTH is another community-based approach, discussed under malnutrition. The strategic use of mass media can also be considered an “approach” to promoting changes in nutrition behaviors.

³ WHO, BASICS, UNICEF 1999.

ENA can be a tool or checklist to assure priority interventions are included in health delivery systems and counseling messages. It highlights *six priority interventions* as part of a lifecycle approach. These are:

- Exclusive breastfeeding for six months
- Appropriate complementary feeding and continued breastfeeding for two years
- Adequate nutritional care during illness and for severe malnutrition
- Adequate vitamin A intake
- Adequate iron intake
- Adequate iodine intake

The ENA framework also proposes *six specific contacts with the health system* for incorporating appropriate nutrition emphases. The contacts are:

- Prenatal care
- Delivery care
- Postpartum care for mothers and infants
- Immunization contacts
- Counseling on infant feeding during well-baby visits
- Sick-child care

The framework does not specify how the behavioral clusters will be promoted through the various contacts; this will vary by country. For example, vitamin A supplementation might be incorporated into immunization programs (such as polio NIDS) or well-baby visits (child health weeks or growth promotion). Counseling on infant feeding is also assumed to take place beyond well-baby visits.

The Nutrition Minimum Package (or MinPak, which is closely related to ENA) focuses on these same six practice-clusters and indicates three levels of intervention: improving facility-based services

(counseling as well as supplies); improving household behaviors (through participatory planning, peer counseling, and women's groups); and improving community supports (access to fortified foods and micronutrient supplements).⁴ Communication activities potentially cut across all three strata.

Community Growth Promotion

Nutrition is a home behavior and for the most part a social behavior rather than a medical one. Growth monitoring has been used as a starting point for promoting practices at the home and community level. Regular weighing can serve as a tool for both *advocacy* and *counseling*. One advantage of growth monitoring is that it “makes visible” what otherwise may go unnoticed. A child whose growth *falters due to illness* can be quickly identified and the mother counseled on appropriate feeding practices. A child who does not gain adequate weight *over time* suffers from a *pattern* of deficiencies. This requires analysis and negotiation with the family, and often help from the community.

A carefully explained community growth chart makes the nutritional status of the whole community visible to its members. Over time it can reveal seasonal problems such as outbreaks of diarrhea and shortages of food or financial resources. It can be a useful tool for collective reflection and problem solving, not only about nutrition but also about health, environmental, and social problems.

Growth promotion is time consuming and challenging. It requires well-trained community workers; scales and charts; a good understanding of local foods and feeding practices; and effective counseling. It also requires strong outreach because those children who do not regularly attend weighing sessions are likely to be at highest risk. Growth promotion activities have been effective in reducing

⁴ Sanghvi & Murray 1997.

underweight and child mortality in a number of countries.⁵ Food supplementation programs have also used regular weighing as a tool for targeting the most needy beneficiaries. However, programs that conduct weighing and charting without providing good counseling and fostering community awareness and problem-solving are a waste of effort and money.⁶

In some countries monthly growth monitoring provides a platform for other child health interventions (such as detecting cases of ARI or malaria). Good ongoing evaluation is important to assess whether the community worker is effective in handling multiple interventions. These programs require intensive training and supervision, which are also challenging to establish at scale.

The *concept* of growth serves as a link between good feeding practices and good health. This link can also be promoted without actually weighing children. In Pakistan, formative research identified three cues related to nutritional status that were recognized and appreciated by parents—the child’s level of energy, the child’s appearance, and recent illness. A program in The Gambia identified the qualities of power and strength as valued benefits that could be linked to good nutrition (see box on page 67). Communication programs must identify *concrete benefits* to motivate changes in practice that may be deeply ingrained in daily habits and cultural tradition. “Good nutrition” is not a tangible outcome for families. Visible benefits are usually the most powerful. Fewer and shorter episodes of diarrhea, better resistance to severe illness, and greater capacity to learn are tangible and real.

Cross-Sector Community Programming

Malnutrition is strongly associated with poor socioeconomic status and low status *within* the family. UNICEF emphasizes three underlying causes of malnutrition: inadequate access to *food*; inadequate maternal and child *care*; and poor water/sanitation and health *services*. These in turn are related to more fundamental issues: inadequate education, social status, and economic security.⁷ Successful nutrition programs are therefore often cross-sectoral and address *underlying causes* (see box page 134). Micro enterprise and credit with education programs, women’s literacy programs, and early childhood education (including day care for infants of women who work) have all been linked to improved child nutrition, especially when combined with a specific focus on improved nutrition practices.⁸

EXCLUSIVE BREASTFEEDING THROUGH SIX MONTHS

Exclusive breastfeeding until the child is around six months of age is one of the most effective of all child health interventions and is estimated to save about five to six million infant lives each year.⁹ Broader adoption of optimal breastfeeding practices could save an additional one to two million lives each year in developing countries. Eight key practices help mothers establish and maintain breastfeeding and also contribute to child spacing:

⁵ Griffiths et al. 1996.

⁶ Ruel 1995. (The number of ineffective GM programs has also caused some to question how feasible this approach is in typical developing country contexts.)

⁷ UN Standing Committee on Nutrition 2004.

⁸ Allen & Gillespie 2001.

⁹ Key practices are for the woman who is HIV negative or of unknown status. Feeding options for the HIV-positive mother begin on page 144.

COMBINING CREDIT WITH NUTRITION EDUCATION

In Ghana in the late 1990s, about 9,000 women participated in a collective credit program that aimed to improve both household food security and nutritional status. The *Credit with Education* program (designed by Freedom From Hunger) combined small-scale loans with training in small business skills as well as education in health, nutrition, and family planning.

Benefiting from small investments

Women borrowed money to invest in running tabletop stores, buying and selling fruits, fish, and other products, and preparing and selling food items and small housewares. The average loan was about US \$78 for a four-month period.

Nutrition and health education The rationale behind the education portion of the program was to promote beneficial spending as well as adoption of better health/nutrition practices. Participatory learning included skits, stories and demonstrations, problem analysis, and trying out new practices at home. The nutrition lessons emphasized exclusive breastfeeding; enriched complementary foods; increased feeding frequency, variety, and hygienic practices; and feeding during and after illness.

Results In a randomized controlled study in Ghana, the program demonstrated large effects on feeding practices. Children aged 12 to 24 months also showed significant improvement in weight and height (about .4 to .5 Z scores) in comparison with changes in the control communities.

Source: McNell & Dunford 1998.

Key Practices¹⁰

- Initiate breastfeeding within one hour of birth
- Position and attach infant correctly at the breast
- Breastfeed frequently during the day
- Breastfeed during the night
- Offer second breast after infant releases the first
- Give only breastmilk
- Continue breastfeeding when mother is sick
- Increase breastfeeding frequency during and after infant's illness

These practices fall into two clusters: early *initiation* and *duration* of breastfeeding up to six months.

Initiate Within One Hour of Birth

The decision to initiate breastfeeding immediately requires *support* from those present at the birth and those who influence what happens at this time. Initiation also requires *skills* or assistance to assure proper positioning and attachment. The primary barriers are usually *beliefs* and traditions that lead to delay, discarding of colostrum, and/or giving prelacteals and postlacteals (such as water or honey or other traditional foods).

Behavior change and communication strategies have focused successfully on mothers, influential family members, and skilled and unskilled attendants. The benefits of early breastfeeding are powerful motivators. Benefits *to the infant* have probably been promoted more energetically than those to the mother, partly because of the need to reposition colostrum as a valuable first food (that serves as a “first vaccination,” for example). Harm reduction (rather than confrontation) has worked best in tackling ritual prelacteals. Programs have typically tried to reduce the

¹⁰ LINKAGES 2001(a).

ritual food to a symbolic “taste” and have used local metaphors to raise the status of colostrum (for example, equating it with a gift to the child from God). The specificity of messages is very important. Programs have often found that the message to “give nothing but breastmilk” is interpreted as “give nothing but breastmilk *and* water, tea, juices,” or whatever is in fact commonly given.

As mentioned in Chapter 2, the very dramatic benefits of early initiation *to the mother* should be promoted during birth preparation and also at the time of delivery: the baby’s suckling helps expel the placenta, helps stop bleeding, and shrinks the womb. Many programs have not emphasized these to enough advantage. Early and exclusive breastfeeding also acts as a natural family planning method. Birth preparation, as well as the postpartum visit, are critical opportunities to counsel mothers on the Lactational Ammenorhea Method (LAM) of birth spacing.¹¹

Within a given country, place of birth is strongly associated with different initiation practices. Aggressive *advocacy* and *policy changes* have been necessary to change institutional norms. Training of *providers* and good counseling aids are key. In many countries advocacy is still necessary to promote the ten steps of the Baby Friendly Hospital Initiative. WHO and

THE IMPORTANCE OF INSTITUTIONS

In Jordan, a two-year nation wide communication program focused on several breastfeeding behaviors under the umbrella theme, the “ten golden rules of breastfeeding.” One goal was to improve rates of early initiation. Before the intervention, more than 60 percent of women waited seven hours or more before breastfeeding. Research showed that both mothers and medical personnel held beliefs that undermined early initiation.

Raising the “status” of breastfeeding The program (managed by USAID’s HEALTHCOM Project with the Noor Al Hussein Foundation) first organized a national seminar to draw attention to breastfeeding (considered by most of the medical community to be a simple practice not worthy of scientific attention) and to position it as an important technology also supported by the Koran. Medical professionals as well as religious leaders attended the seminar, given by high-profile experts and covered by the press.

Promoting specific behaviors The program otherwise focused on families and reached them exclusively through the mass media. A series of television spots were broadcast every evening and longer instructive radio programs were broadcast for two months in 1989 and an additional month almost a year later. Television emphasized the supportive role of family members (husbands, mothers-in-law, and older children), the importance of early initiation, and the Koran’s teaching on breastfeeding. The radio programs featured advice from a fictional woman physician, Dr. Huda, whom women began spontaneously to write with questions.

Results Among all mothers surveyed, knowledge about correct initiation increased significantly (from 41 to 74 percent). However, changes in behavior were directly related to place of birth. Initiation within six hours (the program target) rose significantly from 43 to 69 percent among mothers who delivered in public hospitals and from 42 to 67 percent among those who delivered at home. In private institutions, early initiation rose from 17.2 to 24.5 percent, indicating particularly strong barriers in these settings, as well as the need in general to target those *present at the birth*.

Sources: McDivitt et al. 1993.

¹¹ LINKAGES 2001(c).

UNICEF's institutional self-assessment tool helps maternity wards carry out rapid monitoring to improve the coverage and quality of breastfeeding counseling and policies.¹²

Breastfeed Exclusively for the First Six Months

Optimal breastfeeding is a cluster of behaviors a mother must carry out both day and night and despite any illnesses (her own or the infant's). She needs skills, knowledge, confidence, support, and often persistence in the face of both cultural and social constraints.

WHO estimates that around 35 percent of infants 0-4 months old are exclusively breastfed; the number may be as high as 70 percent in some countries and as low as 2 percent in some African countries.¹³ Improvements are more difficult to achieve than for initiation, which has the obvious advantage of being a one-time cluster of behaviors.

The primary barriers vary. However, very common ones include:

- Belief that the baby needs water, especially in hot weather
- Belief that the mother has “insufficient milk” (lack of understanding that increased suckling produces more milk)
- Belief that breastmilk is not enough nourishment after one or two months
- Rushed feeds due to other work and time constraints
- Separation (due to work outside the home) leading to mixed feeding or early cessation

Other common problems include difficulties with attachment and “topping off” a breastfeed with diluted

animal milk or formula. If use of bottles (or pacifiers) is common, these should be strongly discouraged; they can be highly contaminated and also confuse babies.

Interviews, observations, and focus groups will reveal pervasive problems and the reasons mothers do what they do. Trials of Improved Practices¹⁴ can then help zero in on one or two key problems and find out what changes are easiest for mothers to make. As always, the central focus should be a few simple “doable” actions that will make a difference, rather than the entire litany of positive breastfeeding practices.

Mothers are influenced by their mothers-in law, their peers, their husbands, health providers, and others. In many countries doctors as well as health providers believe water is necessary in the summer. Several studies have shown that messages targeting water must be very specific and highlight “even in summer” or any other sticking point. “Insufficient milk” is another problem that must be tackled with several audiences at once. Few health providers understand the demand/supply mechanism of breastmilk production, how to counsel mothers, and how to reassure them.

Breastfeeding has been largely neglected in pre- and in-service training of most health workers. Both WHO and UNICEF are now emphasizing standardized breastfeeding courses. An 18-hour and a ten-hour course are available for adaptation.

Most changes in breastfeeding behaviors require *skills* as well as *social support*. Peer counseling and mother support groups have both been effective in helping mothers with the techniques of breastfeeding. A study in Mexico found that home visits by trained

¹² WHO, UNICEF, Wellstart 1999.

¹³ Hill et al. 2001.

¹⁴ Dicken et al. 1997.

peers had a significant impact on practices. At three months postpartum, 50 percent of mothers who had been visited were exclusively breastfeeding: the rate was 67 percent among mothers who had received six home visits and only 12 percent in the control.¹⁵ The study showed the most dramatic impact from visits in the first two weeks. Mother support groups have also had measurable impact on exclusive breastfeeding. A program in Honduras extended *duration* of exclusive breastfeeding, which is a very difficult indicator to affect. Mother support groups tend to work best among those who are already inclined to breastfeed, however, and the approach is also challenging to organize at scale.¹⁶

The complexity of breastfeeding, combined with the difficulty of reaching large populations with skilled face-to-face support, has pressured communication managers to create mass media programs that both *teach skills and build confidence*, as well as raise awareness. Several programs have demonstrated that radio, for example, can be used effectively to explain and model these behaviors. In some cases the media can do a better job than face-to-face channels. A program in Bolivia, for example, found that radio was more effective in influencing behaviors than trained volunteers

¹⁵ Rodriguez-Garcia et al. 1990.

¹⁶ Green 1999.

IMPROVING EXCLUSIVE BREASTFEEDING

A behavior change strategy focusing on community groups and message saturation through several channels helped raise exclusive breastfeeding rates in Madagascar. The initial phase (1997-99) included policy activities with the Ministry of Health and establishing an intersectoral nutrition action group.

Communication activities were launched in 2000 and eventually covered six million people. (The program was a partnership between LINKAGES and Jereo Salama Isika, both funded by USAID.)

Multiple interpersonal strategies The program put primary emphasis on the community and on building interpersonal skills among volunteer group leaders as well as health workers. Working through field agents located in each of the districts, the program introduced nutrition education into existing grassroots groups and trained health promoters in counseling and negotiation techniques, using counseling cards and other job aids. Training extended to members of women's groups and to local leaders.

Mass media support Radio broadcasts, television spots, and appearances by a pop singer (a new mother who became Madagascar's "breastfeeding ambassador") heightened awareness of messages and extended their reach.

Institutional focus At the institutional level, the project focused on revitalizing the Baby-Friendly Hospital Initiative and developed self-instructional training modules for maternities. The project also worked with the MOH to integrate a nutrition emphasis in the pre-service curricula of medical, nursing, and midwifery schools.

Results In 2000, after 22 months of communication activities, rapid assessments in ten districts showed exclusive breastfeeding had risen to 83 percent from a baseline of 46 percent. In the following year (after suspension of project activities due to political unrest) rates fell to 75 percent. Almost the entire drop-off was among 4-5 month olds, reflecting the particular challenge of *duration* of exclusive breastfeeding.

Sources: Guyon & Rambeloson 2002.

(partly because of the challenges of training large numbers of semi-literate workers and partly due to problems of reach).¹⁷

Breastfeeding Duration and Mother's Work

Time is a major constraint to breastfeeding for many mothers. Separation is a common reason for stopping breastfeeding. Generally the decisive impact of *mother's work* on breastfeeding has not been adequately addressed, even when surveys point right toward the problem. This is a major gap for programs to deal with if the problem of *duration* is to be taken seriously.

Many mothers who work but are not away from their infants long and can provide enough breastmilk by feeding intensively when back together (at night for example). This practice can be encouraged. A few programs have encouraged working mothers to express and store milk, but this is not culturally acceptable everywhere. Some mothers believe their milk spoils if they are out in the sun, so don't consider bringing their infants to the fields with them. This belief can be targeted.

Even more important are the *policy* and *collective support* actions needed to bridge the gap between breastfeeding and work. Legislation supporting maternity leave and breastfeeding on the job can aid mothers working in the formal sector. Changes in policies will benefit families but also employers, in terms of reduced absences taken to care for sick children. Breastfeeding *advocacy* has a long and venerable history—from the Innocenti Declaration on the Protection, Promotion, and Support of Breastfeeding in 1990 and the Code of Marketing of Breastmilk Substitutes, to the Baby Friendly Hospital Initiative. The time may be right for a workplace friendly breastfeeding initiative. *Collective action* by women to help each other is also crucial, particularly in

the informal sector. Crèches and simple but secure hanging cradles that can be watched alternately by women in the fields benefit all families. Development programs should lead the way by assuring that their own training programs provide crèches for breastfeeding women.

COMPLEMENTARY FEEDING AND CONTINUED BREASTFEEDING, 6-24 MONTHS

The major indicator for complementary feeding is “timely complementary feeding” (giving solid or semi-solid foods) from six months to nine months of age. This is a critical time for growth faltering. Peak vulnerability extends to around 18 months. Foods are usually introduced too early rather than too late. The exception is South Asia.¹⁸ Feeding practices from birth through around two years consist of a series of transitions marked by the child's changing needs as well as capacities. The mother and family help the child navigate these transitions. The process is highly individual to the child, steeped in local customs, and affected by many conditions within the family. Programs used to call this the “weaning” period, a concept that also captured the idea that the child's foods were special and underwent transitions as well. At around one year the child should be eating regular food from the family pot. Because breastfeeding should continue until two years and beyond, however, the word “weaning” has been deemed misleading.

Combining Nutrition and Behavioral Perspectives

Despite its critical importance, nutrition for children 6-24 months old has not received the attention it

¹⁷ LINKAGES 2002(b).

¹⁸ Brown & Bentley 1998.

KEY PRACTICES — COMPLEMENTARY FEEDING

1. Duration of exclusive breastfeeding and age of introduction of complementary foods

Practice exclusive breastfeeding from birth to 6 months of age, and introduce complementary foods at 6 months of age while continuing to breastfeed.

2. Maintenance of breastfeeding

Continue frequent, on-demand breastfeeding until 2 years of age or beyond.

3. Responsive feeding

Practice responsive feeding, applying the principles of psycho-social care. Specifically: a) feed infants directly and assist older children when they feed themselves, being sensitive to their hunger and satiety cues; b) feed slowly and patiently, encourage children to eat, but do not force them; c) if children refuse many foods, experiment with different food combinations, tastes, textures, and methods of encouragement; e) minimize distractions during meals if the child loses interest easily; f) remember that feeding times are periods of learning and love—talk to children during feeding, with eye-to-eye contact.

4. Safe preparation and storage of complementary foods

Practice good hygiene and proper food handling by a) washing caregivers' and children's hands before food preparation and eating, b) storing foods safely and serving foods immediately after preparation, c) using clean utensils to prepare and serve food, d) using clean cups and bowls when feeding children, and e) avoiding the use of feeding bottles, which are difficult to keep clean.

5. Amount of complementary food needed

Start at 6 months of age with small amounts of food and increase the quantity as the child gets older, while maintaining frequent breastfeeding. The energy needs from complementary foods for infants with “average” breast milk intake in developing countries are approximately 200 kcal per day at 6-8 months of age, 300 kcal at 9-11 months of age, and 550 kcal per day at 12-23 months of age. In industrialized countries these estimates differ somewhat (130, 310, and 580 kcal/d at 6-8, 9-11 and 12-23 months, respectively) because of the differences in average breastmilk intake.

(continued in box page 139)

deserves. One obvious reason is its complexity. A single measure of what a child ate within the last 24 hours provides little insight into what is working and what is not. Nutritionists are constantly expanding our understanding of what children need to thrive at different ages in terms of energy and nutrient

requirements, frequency of feeding, and the process of introducing new foods. PAHO/WHO recently published a new Global Strategy for Infant and Young Child Feeding including detailed guidelines on practices in ten different categories (see box pages 139, 140).¹⁹ New indicators are also under discussion.

¹⁹ The nutrition module of the child survival KPC survey questionnaire has recently been revised (Arimond & Ruel 2003).

(continued from box page 138)

KEY PRACTICES — COMPLEMENTARY FEEDING

6. Food consistency

Gradually increase food consistency and variety as the infant gets older, adapting to the infant's requirements and abilities. Infants can eat pureed, mashed, and semi-solid foods beginning at six months. By 8 months most infants can also eat "finger foods" (snacks that can be eaten by children alone). By 12 months, most can eat the same types of foods as consumed by the rest of the family (keeping in mind the need for nutrient-dense foods, as explained in #8). Avoid foods that may cause choking (i.e., items that have a shape and/or consistency that may cause them to become lodged in the trachea, such as nuts, grapes, raw carrots).

7. Meal frequency and energy density

Increase the number of times the child is fed as he/she gets older. The appropriate number of feedings depends on the energy density of the local foods and the usual amounts consumed at each feeding. For the average healthy breastfed infant, meals of complementary foods should be provided 2-3 times per day at 6-8 months of age and 3-4 times per day at 9-11 and 12-24 months of age, with additional nutritious snacks (such as a piece of fruit or bread or chapatti with nut paste) offered 1-2 times per day, as desired. Snacks are defined as foods eaten between meals—usually self-fed, convenient and easy to prepare. If energy density or amount of food per meal is low, or the child is no longer breastfed, more frequent meals may be required.

8. Nutrient content of complementary foods

Feed a variety of foods to ensure that nutrient needs are met. Meat, poultry, fish or eggs should be eaten daily, or as often as possible. Vegetarian diets cannot meet nutrient needs at this age unless nutrient supplements or fortified products are used (see #9). Vitamin A-rich fruits and vegetables should be eaten daily. Provide diets with adequate fat content. Avoid giving drinks with low nutrient value, such as tea, coffee and sugary drinks such as soda. Limit the amount of juice offered so as to avoid displacing more nutrient-rich foods.

9. Use of vitamin-mineral supplements or fortified products for infant and mother

Use fortified complementary foods or vitamin-mineral supplements for the infant, as needed. In some populations, breastfeeding mothers may also need vitamin-mineral supplements or fortified products, both for their own health and to ensure normal concentrations of certain nutrients (particularly vitamins) in their breastmilk. Such products may also be beneficial for pre-pregnant and pregnant women.

10. Feeding during and after illness

Increase fluid intake during illness, including more frequent breastfeeding, and encourage the child to eat soft, varied, appetizing, favorite foods. After illness, give food more often than usual and encourage the child to eat more.

Source: PAHO 2003.

Consensus will help not only with program design, but with much needed advocacy for what we used to call “the weanling.”

This is probably the longest *list* of key practices in all of child survival. It shows why complementary feeding has always been difficult to translate into “a few key behaviors” or simple messages. While the science has advanced, nutrition counseling in the field has often remained stuck on the basic food groups. Communication programs must work with nutritionists to understand how a small number of changes in what most families are doing might make a difference. Extensive food recalls and analyses, observations of food preparation and feeding styles, group discussions, and market surveys can reveal *what* children are given and *how* at different ages, and what specific improvements might be feasible and affordable. Trials of Improved Practices with individual mothers are especially valuable for testing different options. Recipe trials with groups of women also help determine what alternatives are acceptable.

Introduction of IMCI at the facility level should include some of these basic steps. The district adaptation process includes revision of the IMCI “Food Box.” The box identifies local foods, ways to fortify them if necessary, and specifies what to give and how many meals at different ages. These recommendations should be incorporated in the child health card as well as health worker counseling. In reality, adaptations may be necessary for several areas or populations.

In order to counsel mothers or create media products however, communication programs must go further and help mothers *bridge the gap* between the recommendations and what they typically do. This requires knowing their constraints and what might motivate change. Those who counsel mothers must

anticipate local problems, *ask specific questions* about how an individual mother feeds her child, and *negotiate* improvements she might make.

Negotiation is particularly important concerning feeding behaviors because a problem might be resolved by several alternative practices. (Allowing a mother to choose what is easiest and most comfortable for her increases the chances she can maintain the practice.) One regional program in West Africa trained community nutrition volunteers in a five-step counseling process that also included reflection on whether an identified problem should be discussed in mothers groups or by the larger community.²⁰ Job aids such as counseling cards that emphasize good local practices by age and by problem (feeding during illness for example) are invaluable for providing more generic advice.

A Balance of Factors—a Moving Target

Good nutrition is a variable formula. Fiddling with one factor affects the others. A nutritionist must help with the science. But nutrition at this age is primarily about *care*, and solutions may lie in unexpected directions.

Quality

Poor quality of foods is a common “major offender.” Across cultures, children are often given thin gruels or soups. Simple messages can focus on giving the child “the thicker part of the soup” or giving the regular family food after it has been mashed or pureed. Quality and *diversity* of food including adequate amounts of protein, energy, and micronutrients is a challenge (see page 146 for more on vitamin A). A number of programs have worked with mothers to develop new

²⁰ Nutrition Communication Project 1995.

recipes that enrich a common porridge (often grain-based in sub-Saharan Africa and rice-based in Asia) with simple ingredients that provide added protein and micronutrients (oil, ground peanuts, and cow pea flour in Africa, for example, and fish flakes and vegetables in Southeast Asia). Acceptable changes must be affordable and require little preparation time.

Traditional household technologies (such as fermentation, roasting, and malting) can also improve the *quality* or the *safety* of foods. One program in Tanzania that promoted a fermented gruel achieved a 40 percent reduction in children's diarrhea.²¹

Frequency

Recommended frequency of feeding depends on the age of the child and the calories offered. Frequency is another common "offender." It may actually be a marker for a constellation of problems arising from *time constraints* in the family. When a mother is employed or in the fields during certain seasons the child may be left with others. Someone may give the child a low quality snack or leftovers that have not been reheated. *Who* is feeding the child is an important question for message design. Very often the child at greatest risk is largely in the care of an older sibling. Communication programs to date have not looked closely enough at *why* children may not be fed frequently enough and *who* can feed that child what and when.

Quantity

Our understanding of *how much* young children need to eat is continuously being revised downward.

Estimated energy requirements are 5-18 percent lower than those published as recently as 1998.²² Quantity may be a more serious problem for an older child if the custom is to eat from a common pot. This is also a *care* issue, however. Some programs recommend giving a young child his or her own bowl as a way of drawing attention to how much the child actually eats.

Hygienic Preparation and Feeding

Half of childhood diarrhea may be the result of contaminated food.²³ Polluted water, dirty pots, cooking utensils, unwashed hands, and unhygienic surroundings all contribute. The box on page 139-40 lists key practices. In a particular community however, one important change might be to keep chickens out of the kitchen or to keep a dog away from the child's plate. Even observational research is difficult because people tend to change these particular behaviors in the presence of guests. Few programs have conducted research to analyze this category of problems.

Responsive/active Feeding

Some parents are attentive to their children's hunger cues, coax them to eat, and are responsive to their efforts to communicate about food. Eating is a developmental process and a socialization process. In a few cultures a child may be "force fed," which is not healthy. In many, however, a child of 12 months or older may be set on the ground with a bowl and left alone while others go about their work. Feeding a child who is under-nourished, in particular, takes patience and persistence.²⁴

²¹ Hill et al. 2001.

²² Dewey & Brown 2003.

²³ Hill et al. 2001.

²⁴ Engel 1999.

Processed Complementary Foods

Especially in urban areas, many children are already eating pre-cooked commercial foods. In some areas women's groups prepare and sell nutritious snacks specifically for young children. Most products produced in the private sector are not affordable to those at highest risk. However, increased urbanization and employment of women has made this an important potential product niche.

Experience has shown that improvements in one child's feeding behavior may have unexpected consequences on others. For example, children in this age range still need the anti-infective qualities of breastmilk and messages about food quantity have sometimes led to displacement of calories from breastmilk.²⁵ A program in Ghana found that a successful effort to promote exclusive breastfeeding seemed to have a negative effect on timeliness of introducing semi-solid foods. This points up the necessity of testing all nutrition messages carefully. It also seems best to promote a whole continuum of behaviors rather than practices for isolated ages.²⁶

Feeding During and After Illness

Children lose their appetites when they are ill and are less able to absorb what they do eat. In some communities mothers withhold food during diarrhea or administer harmful remedies such as purges. Feeding during and after diarrhea is particularly critical (see Chapter 4). A child with ARI may have reduced appetite and also have trouble eating, or especially breastfeeding, because of a blocked nose. Mothers are less apt to withhold

²⁵ Brown and Bentley 1989.

²⁶ Ibid.

DIETARY MANAGEMENT OF DIARRHEA

Diarrhea as a “Moment of Opportunity”

A nutrition program in Peru in 1994 aimed to address the problem of widespread stunting and the effects of frequent diarrheal episodes. Research showed mothers were introducing complementary foods at around five months, but fed children thin soups until around the age of one. They took their children to the field but could not bring soup with them, so only fed them twice a day.

Families had no concept of malnutrition but were concerned about frequent diarrhea and the effects on children's appetites and growth. The program decided illness could be a “moment of opportunity” to ask mothers to try something new.

Creating a New Product The project (known as the Dietary Management of Diarrheal Disease project, funded by USAID) conducted extensive formative research, including market surveys of local foods, and worked with a nutritionist to find a traditional recipe that could be improved at low cost with the addition of pea flour, carrots, and oil. Recipe trials with mothers' clubs helped refine the recipe. It could be prepared in eight minutes and was easy to handle and could be taken to the fields.

The new product was named “Sanquito” to position it as a food with medicinal connotations. The program demonstrated how to make Sanquito in women's groups, at local markets, and promoted it over the radio. Sanquito was also promoted to health workers, and prescription pads with the Sanquito recipe were sent to physicians.

Results After a 90-day trial, 82 percent of mothers surveyed had heard of Sanquito; 16 percent had tried it; and 12 percent said they planned to give it to their children again. The program could not be sustained because of security reasons and the long-term fate of Sanquito is not known.

Source: Brown & Bentley 1994

food during ARI. However, counseling about feeding during any illness is critical and is often overlooked by providers or is poorly done. Special foods and feeding practices are needed during rehabilitation for severe malnutrition (see page 152).

Feeding *during illness* and *during recuperation* are different behaviors and require different beliefs and skills. Mothers tend to be very sensitive to their children's loss of appetite while ill. They may offer special foods. While recovering, the child needs additional food and generally has an increased appetite. But few mothers are aware of this need.²⁷

The key practice during illness is *many small feeds*. The key requirements are time and patience. Mothers should be encouraged to give children whatever they are willing to eat. There is no reason to reduce food quality during diarrhea, as WHO recommended in earlier years. In most cultures, mothers do continue to breastfeed and children usually continue to accept breastmilk even if they lose their appetite for animal milk, for example.²⁸ Breastfeeding also helps comfort an ill child. "Continue breastfeeding" is therefore a simple, feasible, and rewarding message for mothers. It is a critical message for any mother who might be inclined to withhold breastmilk.

A child should receive an extra meal every day for at least two weeks while recuperating. However, during this time the child is probably not getting the same attention from his or her mother and feeding responsibilities may also have reverted to others. The message "give additional food following illness" is therefore a challenging one. It must be directed at the mother but also at the entire family. Again, the major requirements are time and patience. At this age the additional meal is not costly.

²⁷ Bentley et al. 1991.

²⁸ Huffman et al. 1991.

²⁹ See LINKAGES 2004 for a more detailed discussion of this topic.

Heightened concern about nutrition *during illness* makes this a good time for new feeding suggestions. Chapter 4 described special foods more easily absorbed during diarrhea that also can reduce stool volume. A "prescription" for a special food is a useful communication tool. Some programs have used this moment to introduce new complementary (or "weaning") foods, positioning them as products that have special qualities (see box page 143).

Most importantly, this is probably the single most crucial *moment* for counseling of any kind about child feeding. The provider may also be more inclined to discuss feeding practices with the mother than during a well child visit. This is an opportunity for the provider to link good feeding practices with *resistance to disease*.

Infant Feeding in the Context of HIV

A number of facts are now known about the transmission of the HIV virus through breastfeeding. An HIV-positive mother should be counseled on how to make decisions appropriate to her own circumstances and how to carry out steps to protect her own and the child's health in the context of that choice.²⁹ Counseling about feeding options is a critical part of any program to prevent mother-to-child transmission (PMTCT) of HIV.

Relative Risks to the Child

About 15 percent of infants breastfed for 18 to 24 months will become infected through that route if their mothers are HIV positive; one-half to two-thirds of this transmission takes place *after* six months. These transmission risks must be weighed against the dangers to the child of not being breastfed during

corresponding months. An infant not breastfed in the first two months of life has a six-fold risk of dying from an infectious disease. At six months the risk is about two-and-a-half fold. This means that for most children in the developing world, the risks of not being breastfed are greater than the alternative until around six months of age.

These are only the statistics, however. Every mother's situation is different. Whatever her decision, optimal child feeding practices will be challenging and require support.

Practices for the Mother Who Chooses to Breastfeed

Exclusive breastfeeding is even more important than usual for the HIV-positive mother. Mixed feeding has been shown to increase the chance of infection (over either breastfeeding *only* or replacement feeding *only*).³⁰

The mother must also protect her own health. Breast conditions (cracked nipples, mastitis, and breast abscess) increase the chance of transmitting the virus. She needs good counseling on proper positioning and attachment and how to avoid breast problems as well as what to do if they occur. She should also be counseled on practicing safe sex in order to guard against re-infection. The risk of transmission is higher if she is newly infected while breastfeeding.

At around six months or sooner if the mother chooses, she should transition to replacement feeding. This transition should be *rapid*—over the course of a few days or a couple of weeks—in order to avoid the dangers of mixed feeding. It requires many new behaviors: cup feeding, expressing/heating breastmilk, feeding the child at night, and not comforting the child with the breast. The mother has to resist the temptation to reintiate breastfeeding. Counseling and support are very important during this period.

³⁰ Ibid.

AFASS: CRITERIA FOR REPLACEMENT FEEDING

A counselor should help an HIV-positive mother consider whether she meets the “AFASS” criteria for selecting replacement feeding:

Acceptable The mother perceives no barrier to choosing replacement feeding for cultural or social reasons, or for fear of stigma and discrimination.

Feasible the mother (or family) has adequate time, knowledge, skills, resources, and support to correctly prepare breastmilk substitutes and feed the infant 8-12 times in 24 hours.

Affordable The mother and family, with available community and/or health system support, can pay for the costs associated with the purchase/production, preparation, storage, and use of replacement feeds without compromising the health and nutrition of the family. Costs include ingredients/commodities, fuel, clean water, and medical expenses that may result from unsafe preparation and feeding practices.

Sustainable A continuous, uninterrupted supply and a dependable system for distribution of all ingredients and products needed to safely practice replacement feeding are available for as long as needed.

Safe Replacement foods are correctly and hygienically stored and prepared and fed with clean hands using clean cups and utensils—not bottles or teats.

Source: LINKAGES 2004, adapted from WHO 2003.

Practices for the Mother Who Chooses Not to Breastfeed

The mother who chooses not to breastfeed can feed her child commercial infant formula or home-modified animal milk. She should be counseled that replacement feeding should be “acceptable, feasible, affordable, sustainable, and safe” (AFASS). The cost of replacement feeding is only one consideration. If these other criteria cannot be met, the child is still at greater risk (see box page 145).

Integrating Quality Care

Care of the mother and the child in the context of HIV must be mainstreamed into maternal and child health programs. This requires new norms and training. It also raises the stakes considerably for a number of already difficult behaviors. Among the most difficult are *maternal nutrition* and *complementary feeding*. Asymptomatic HIV infection increases energy needs by 10 percent and symptomatic infections increase needs by up to 30 percent.³¹ The breastfeeding mother who is HIV-positive requires ongoing nutrition counseling. The child who is totally weaned at an early age—even at six months—needs the maximum benefits of hygienic and responsive feeding, as well as high quality food. Communication programs will be profoundly tested by these challenges.

Policy and advocacy issues

Strong advocacy is needed to encourage countries to revise national infant and young child feeding policies to include options in the context of HIV. This is also a

time for vigilant monitoring of compliance with the International Code of Marketing of Breast Milk Substitutes. Response to these new challenges should not facilitate non-compliant donations or inappropriate promotion of breastmilk substitutes.

VITAMIN A

Supplementation Strategies

Vitamin A deficiency undermines the immune system and makes children more susceptible to mortality from common infections. In the 1980s, studies confirmed that twice yearly supplementation of high-dose vitamin A (for children 6-59 months) can reduce under-five mortality from all causes by around 23 percent.³² Supplementation has protective effects against deaths from diarrhea and measles, reducing mortality by 33 percent and 50 percent respectively.³³ The protocol for treating measles now includes two or three doses of vitamin A.

Governments usually coordinate preventive supplementation through some kind of mass distribution strategy. National Immunization Days (NIDS) were a convenient way to “piggyback” one yearly dose along with polio eradication efforts in the 1990s. As polio campaigns wound down, countries looked for other mechanisms. A study of seven programs that achieved at least 70 percent national coverage pointed to three successful strategies:³⁴

- Vitamin A days—(National Micronutrient Days) twice yearly
- Child Health Weeks (vitamin A and a package of child health services) twice yearly

³¹ Ibid.

³² Hill et al. 2001.

³³ WHO also recommends a single high dose (200,000 IU) of vitamin A to postpartum women (for breastfeeding women, within 8 weeks, and for non-breastfeeding women, within 6 weeks). A nursing infant will also benefit from the mother's taking this supplement (IVACG 1998).

³⁴ Harvey et al. (no date).

- Inclusion in an existing monthly outreach strategy (two selected months per year)

All of these are campaign-like approaches and many of the behavioral and communication issues are similar to those of immunization campaigns.

Families

A vitamin A capsule is a relatively simple and desirable product. It is also appreciated by families as one of the few preventive services offered to *older* children as well as younger ones.

Vitamin A can serve as a draw for other services (growth promotion, deworming, ITNs, vaccinations, other micronutrients). As a program matures, the major promotional challenge is simply to get the word out about *what, when, where, and for whom*. Part of the goal is to create a new norm—“vitamin A is available twice a year during month (x) and month (y).”³⁵

In the early years of a program, communication efforts must (re)position the product. Vitamin A may be known for protecting the eyes—but children only go blind from severe deficiency and communities may not identify with this problem. Programs have often associated vitamin A with its “survival” value (helps the child recover from serious illness, saves lives) and with local concepts of “vitality” (helps children grow strong and energetic).³⁶

³⁵ MOST (Accessed May 13, 2004).

³⁶ Ibid.

INTRAHOUSEHOLD STRATEGIES

In 1991 the Ministry of Health in Niger joined with the Ministries of Agriculture and Education and several international NGOs to reduce vitamin A deficiency in a population of around 250,000. The three-year pilot (in collaboration with USAID’s Nutrition Communication Project and Helen Keller International) focused on nutrition communication strategies to improve household consumption of vitamin A-rich foods. At baseline, around 75 percent of pregnant women and 66 percent of nursing women were at risk of vitamin A deficiency; 50 percent of children aged 13-36 months and 62 percent of children aged 37-72 months were at high risk.

Changes in consumption as well as sharing of foods

The food-based strategy promoted culturally acceptable and feasible alternatives (in light of seasonal availability of foods as well as variations in income). Messages focused on consumption of foods and also intrahousehold food allocation—in particular, the purchasing practices of men.

Research showed that grilled liver was a prized snack available in the market. Even small amounts (25 grams every two weeks) can meet 75 percent of a young child’s needs. One program goal was to increase the frequency with which fathers buy liver as snacks for their families. Other goals included encouraging mothers to buy liver or to share the liver of animals provided at feasts with children. Messages also focused on increasing consumption of squash and mangoes, as well as green leafy vegetables.

The media strategy combined the strengths of interpersonal communication and radio. Amateur village dramas laid the basis for group discussions and counseling by government workers, teachers, and agricultural extension agents. An FM station also broadcast the dramas, raising the prestige of individual villages as well as reinforcing the messages.

Results After the year-long campaign, 73 percent of women reported eating liver in the past week compared to 43 percent at baseline; 49 percent of women indicated their children had eaten liver in the past week compared to 37 percent at baseline. The percent of men who said they brought home liver doubled; and the percent of women who indicated they themselves purchased liver and brought it home increased from under 1 percent to 12 percent.

Source: Seidel 1996.

Safety is an important concept as well. Fears have focused on toxicity—either that the product is dangerous or the provider does not know how to give it properly. Rumors and adverse events have been a problem for vitamin A as for practically all campaign-style interventions. *Safety* has been the key issue to date for vitamin A.

Providers

Distribution strategies have depended heavily on semi-literate volunteers. Training is crucial—in techniques (to assure safety) and in communicating with parents. In Nepal, volunteers have used the national days to promote food sources of vitamin A as well. During most distributions volunteers only have time to convey basic messages, however. Communication programs can give them basic *job aids*—how to measure and deliver doses, key messages for parents, and answers to common questions. Providers also need clear information on how to follow up with any missed children.

Twice yearly distributions can sap the regular health system and burn out volunteers. As always, non-monetary *incentives and rewards* are essential, as are *signs of appreciation* from the community and the government. *Information on coverage* is a necessary part of this feedback so that problems can be discussed and solved as a group. Successful programs have empowered volunteers and given them “ownership” of program results.

DESIRABLE PRODUCT, RESPECTED COMMUNITY WORKER

The story of vitamin A in Nepal is inextricably linked with that of Female Community Health Volunteers (FCHVs). This cadre was launched in 1988 by a female Minister of Health committed to women’s empowerment. In 1993 the FCHVs (mostly non-literate women over 25) were authorized to distribute vitamin A in bi-annual campaigns.

A desirable product, a respected worker

Participatory training and regular capsule supply were key to the program’s success. Vitamin A is a desirable product; an efficient distribution system has assured capsules are available even in remote areas, raising the *prestige* of the FCHVs. *Training* is geared to give them confidence and to motivate commitment to their communities. Each worker receives materials identifying her with the program as well as registers and educational aids. Local leaders are trained in how to support distribution. Only the FCHV is allowed to dispense the capsules, assuring her status in the program. The distribution day itself is a festival with parades and dramas. The national program encourages visits by high-level observers as an advocacy strategy for both communities and policymakers.

Results By 2002 the program* reached national scale and achieved over 80 percent coverage. The program also brought about a shift in community attitudes toward the FCHV and improved job satisfaction. In contrast to many countries, the average FCHV stays on the job nine years with no financial compensation. Communities in 15 districts have set up endowment funds for the program, providing various supports to service delivery.

The new visibility of the FCHVs as well as their improved outreach skills has also led the way for more complex interventions. Nepal’s ARI program (described in Chapter 6) for example, relies upon FCHVs to visit homes, and on families to trust their skills. The vitamin A program may have been a necessary first step in strengthening the FCHV-family relationship.

(*National program supported by USAID, JSI, and the Nepali Technical Assistance Group)

Sources: Coates 1999; BASICS 2004.

Communities

Mobilization of families often rests on communities and local NGOs. In Indonesia, Muslim women's groups played a critical role in reaching families in poor urban areas. In Ghana, the school system promoted outreach through a child-to-family effort. In Nepal, local leaders honor the volunteers and communities help with transportation and tea. Although mass media can support demand creation and get out the tactical messages, the massive outreach needed requires that the health system work *with* communities to arrange distribution sites and get the word out.

Policymakers and the Press

Vitamin A is a new intervention in many countries and decision makers may be unsure about its benefits or about the right delivery system. A “vertical” campaign approach may conflict with decentralization goals, for example. Successful programs have been led by national task forces that have begun by reviewing country mortality data. The press are also useful partners in educating the public about vitamin A—explaining government strategies and promoting upcoming launches. They are important allies in the face of adverse events. District and lower levels must also be prepared to respond quickly to rumors and to any safety issues and must develop good relations with the local press as well.

Coverage data are important for *advocacy purposes* and planning at all levels. This is a challenge for a new intervention that is not yet part of the health information system. Incorporating vitamin A supplementation into routine monitoring systems is the first step towards program sustainability.

Household Strategies

Household and community approaches can provide long-term answers to vitamin A deficiency. These begin with food-based approaches such as fortification (discussed on page 151) and increased dietary diversity. Well-designed behavior change and social marketing strategies can also address allocation and consumption of foods *within* the family, increase *women's control* over resources to purchase foods, and encourage actual *production* as well as processing of foods. Household strategies are usually complex, multi-faceted, and difficult to evaluate. There is a wealth of experience and some good results however.

Food-based programs often promote consumption of vitamin A-rich foods, such as eggs, liver, and milk products, as well as precursors including orange and yellow fruits, red palm oil, and dark green leafy vegetables. They may also promote new preservation techniques, such as solar drying, that allow families to consume products beyond their usual seasons. Strategies to improve the family diet have recently proven even more challenging, however. The cheapest sources of vitamin A—green leafy vegetables—cannot be eaten in large enough quantities to improve status.³⁷ The best sources—animal products—are the most expensive and are also usually reserved for males.

Promoting any changes in the family diet requires specialized research and close collaboration with nutritionists. A seasonal calendar of what is available and affordable, methods of storing and preserving foods, local recipes, taste preferences, and intra-family consumption patterns as well as food purchasing behaviors must all be examined. New recipes or preservation methods also require “product testing” techniques familiar in the commercial world. After all of this, suggested changes must be *simple* and should build on what people are already “doing right” and

³⁷ West & Eilander 2000.

what they find *familiar and easy*. Options must be tried and tested by those in the community—including children. Mothers often say they are willing to adopt something “if their children like it.”

Dietary diversity is a *food security issue* and also an *intra-family issue*. Vitamin A programs often include a food production component, targeting specific products for kitchen gardens or encouraging families to consume a portion of the produce from animal husbandry efforts. Nutrition programs have a long history of collaboration with agricultural extension programs, as well as community and school garden and education activities.

Strategies that require changes in intra-household food allocation are challenging. Such changes can be the key however, and successful projects have not shied away from them (see box page 147). The most efficient vitamin A consumption changes can be small ones—such as occasional snacks of liver that the family can afford but are usually reserved for males.

OTHER MICRONUTRIENTS

Iron and Anemia

Prevention and treatment of anemia require an integrated strategy looking at the roles of both *nutrition* and *infection*. The epidemiology varies by country and region, and iron supplementation by itself may do little for children. It is important to assess the causes of anemia in a given population. Anemia can be caused by low dietary iron intake, poor absorption of dietary iron, malaria, helminth infections (such as hookworm

or schistosomiasis), and sickle cell disease. Repeated infections (such as chronic diarrhea) are also linked with anemia, as are deficiencies of vitamin A and other vitamins and minerals.³⁸ Pregnant women, children 6 to 24 months, and low birth weight babies are especially susceptible. In developing countries, over half of preschool children suffer from anemia.³⁹

In areas where hookworm (helminth) infection is greater than 20 percent among children, WHO recommends twice yearly deworming for *children over two*. In many countries deworming is included in Child Health Weeks. It may rapidly improve child growth and parents appreciate the service. In areas with high prevalence of helminths, deworming should be actively promoted as one of the benefits of Child Health Weeks or other preventive activities.

In malaria endemic countries, deaths due to severe malarial anemia are at least double those for severe iron deficiency severe anemia.⁴⁰ Insecticide-treated nets are an important intervention to prevent anemia among children under five. One study of infants 1 to 11 months old in a high malaria transmission area in Kenya showed that ITNs reduced anemia by 60 percent.^{41, 42}

Nutrition strategies for children focus on *fortification, supplementation, and food-based* approaches (see page 151). Exclusive breastfeeding and optimal complementary feeding practices, including consumption of iron-fortified foods from 6 to 24 months, are important to prevent nutritional anemia. Children may be deficient when they don't eat enough heme iron-rich food (such as meat, poultry, and fish),

³⁸ Brabin et al. 2001.

³⁹ Hill et al. 2001.

⁴⁰ Brabin et al. 2001.

⁴¹ Phillips-Howard et al. 2003.

⁴² A study in Tanzania found that intermittent treatment for malaria at the time of routine vaccinations reduced malaria by 59 percent and severe anemia by 50 percent. Intermittent treatment of children is not a standard approach at this time, however (Schellenberg et al. 2001).

and when their diets are high in grains or starchy roots. Phytates in whole grains will reduce absorption, as will the tannin in tea. Nutrition education messages can focus on eating small amounts of meat and citrus fruits (even small amounts of vitamin C will promote absorption) and not drinking tea with meals. Various technologies also increase the bioavailability or absorption of plant-based iron: germination, fermentation, and amylase treatment of food, and cooking in iron pots can also help improve iron status.

Animal products are the most important sources of iron. Agricultural projects promoting small animal husbandry and fishponds can improve children's iron as well as vitamin A status.

Supplementation with iron is recommended for *low birthweight* babies, who are born with low stores of iron. They should receive daily iron supplements *from 2 to 23 months of age*.⁴³ WHO also recommends iron supplementation for children *6 to 24 months of age* in areas where the prevalence of anemia in young children is 40 percent or more.⁴⁴

Zinc

Zinc deficiency is prevalent among young children and is linked with more frequent, more serious, and longer illness, and with growth retardation.⁴⁵ In therapeutic trials zinc has been helpful in both preventing and treating childhood diseases. Supplementation has reduced the incidence of malaria, has reduced the severity and duration of diarrhea episodes, and reduced rates of both diarrhea and pneumonia.⁴⁶ Recent trials

have generated great interest in the public health community.⁴⁷ In 2002, WHO and UNICEF issued new recommendations for diarrhea management: children who are ill should receive zinc supplements (tablets or syrup) for 10-14 days to treat the diarrhea and reduce recurrence (see Chapter 4.)

Any *preventive strategies* involving zinc would be more complex. Unlike vitamin A (and like iron) zinc must be taken regularly in small doses according to a child's age.

Multivitamins and New Products

Some public health experts are very interested in promoting multivitamins (for example, an iron-zinc combination) as a standard preventive measure. However, to reach vulnerable populations the product would require age-specific doses, instructions, and a dependable distribution system. It would present both compliance and monitoring issues.

Commercial partners are also interested in a product called "sprinkles" which can be packed in single doses and mixed with a child's regular complementary food without changing taste or texture. In trials it has been acceptable to parents and children. One spoonful a day would meet the micronutrient needs (iron, vitamin C, zinc, vitamin A, iodine) of infants. Sprinkles are in a trial stage and would also present issues of compliance, cost, and distribution.⁴⁸

⁴³ Stoltzfus & Dreyfuss 1998.

⁴⁴ Ibid.

⁴⁵ Walker & Black 2004.

⁴⁶ Ibid.

⁴⁷ USAID 2004.

⁴⁸ Tondeur et al. 2004.

FOOD FORTIFICATION

Food fortification is a cost-effective and sustainable approach for reducing micronutrient deficiencies.⁴⁹ The process usually costs less than two percent of the product's retail price. In order to reach vulnerable groups, the food vehicle must be a staple, consumed in sufficient but safe amounts by those under five, and produced by just a few central plants so that supply can be controlled. Fortification must also be a mandatory process in order to benefit the poor—raising both import and export considerations.

Even when fortification is mandatory, the new product requires careful consumer research and social marketing. *Packaging, labels, and positioning* are crucial. Common food vehicles for different micronutrients include sugar, wheat flour, corn flour, salt and MSG, fats and oils including margarine, and milk. Each one of these products means something to people and concerns about altering them will vary tremendously by country as well as audience group. Universal Salt Iodization (USI) has been successful in much of the world. In Pakistan, however, the original marketing materials made people suspect a connection with the family planning program. Bread fortification is particularly challenging because of many associated intangibles. In Morocco, higher socioeconomic groups were afraid of genetic engineering; poorer groups feared deterioration in quality and higher costs; both feared commercial manipulation of some kind.⁵⁰

Food fortification involves many partners and requires good collaboration between the private sector and the government. Usually a multisectoral task force

coordinates the process, helping to propose policies and draft legislation. Often an experienced third party catalyst assists. The marriage can sometimes begin on a rocky basis and must be sustained over time. In Zambia, the country's major sugar manufacturer welcomed mandatory fortification because it helped assure greater vigilance against foreign and black market competition.⁵¹ In Guatemala, however, neither the government nor industry were very keen on passing or enforcing legislation, and public health advocates and the general public had to put pressure on both for around a decade to assure a fortification program launched in the mid-1970s remained in effect.⁵² The “catalyst organization” in such a process must take a behavioral perspective on the barriers and benefits to both sides, and also find supportive advocates to apply the right amount of pressure and supply the right awards.⁵³

SEVERE MALNUTRITION

Practices and Products for Rehabilitation in the Home

Health workers are trained to recognize severely malnourished children according to a number of signs including severe wasting, edema of both feet, and—for severe anemia—very pale palms (palmor pallor). Current recommendations are for such children to be rehabilitated in a hospital or a therapeutic feeding center. However this is not always feasible, either for the health system or for the family member who may have to stay with the child up to 30 days.

⁴⁹ WHO 2001.

⁵⁰ Centers for Disease Control and Prevention 2001.

⁵¹ Serlemitos & Fusco 2001.

⁵² Mora et al. 2000.

⁵³ Centers for Disease Control and Prevention 2001.

Programs in both Bangladesh and Ethiopia found that home management can be effective and cheap.⁵⁴ In Bangladesh, children treated at home following a week of in-patient care did better than those who remained in the centers, and their mothers preferred this as well. In Ethiopia, an emergency feeding program trained some mothers to treat their children at home with just one visit a week to the center. They were first treated for infections and then given supplies of therapeutic foods, including a ready-to-use food (RUTF)⁵⁵ in the form of a paste, which children can eat from the packet.

The mortality and recovery rates were significantly better than international minimum standards for therapeutic feeding centers. Recovery was slower than expected, and the program believed this was probably because the therapeutic food was shared with others in the family. Program staff anticipated that rations would be shared with other family members and provided extra take-home rations. However, it concluded that the message “not to share” needs to be particularly strong.

Rehabilitation in the Community —Hearth

The Hearth/Positive Deviance approach looks for solutions to childhood malnutrition *within* the community, and also focuses on the community as the means of rehabilitation. It includes two phases. Formative research consists of nutrition and health assessments as well as a participatory process that helps the community identify children who are thriving

despite impoverished circumstances, and it analyzes what these families are doing that is different. These are the “positive deviants.” The second phase consists of cooking demonstrations and on-site as well as at-home feeding of children, using the same foods and care giving practices as those of families whose children are doing well. Rehabilitation therefore takes place right at the family hearth.

The positive deviance inquiry includes home visits by researchers to observe behaviors. These include *nutrition* behaviors, *caring* behaviors, and *health-promoting* behaviors. In Vietnam, research found that mothers collected the tiny shrimps and crabs from the irrigation ditches and added these along with sweet potatoes and greens to their children’s diet.

When caretakers participate in the hearth demonstration and on-site feeding they are asked to bring “positive deviant” food with them as the “price of admission.” The program also includes regular growth monitoring and usually deworming. In Vietnam, two years after the start of the program, severe malnutrition was eliminated (from a baseline of three percent) and mild and moderate nutrition were both reduced by 80 percent. Fifty-nine percent of participants were rehabilitated to normal and remained so 14-23 months after participation. A follow up study several years later found that the largest nutrition benefits were actually among younger siblings who had not been directly involved in the program but benefited from the new family practices.⁵⁶

In Vietnam the model was scaled up from 14 to 160 communes (1,500,000 population) through a

⁵⁴ Collins & Sadler 2002.

⁵⁵ Ibid. (RUTF is a fat-based food with high energy and nutrient density equivalent to the Formula 100 used in therapeutic feeding centers. It was developed by Institute de Recherche pour le Developpement and is also produced in Malawi by a local company. The product is also promising as a replacement feeding for children whose mothers stop breastfeeding early due to HIV/AIDS. RUTF is a humanitarian effort and is not sold commercially. The French company Nutriset produces a version called Plumpynut[®] and the Danish company Compact produces a bar called BP100.

⁵⁶ Mackintosh et al. 2002.

“living university” approach. Representatives of government and other organizations attended a two-week training program at a participating commune that served as a campus for learning about the process.

NUTRITION, HEALTH, AND POVERTY

Nutrition, probably more than any of the other child survival interventions, requires behavior and communication programs to stay focused on the underlying causes of poor health. Inadequate access to food is an economic issue. But this is only the most obvious reflection of poverty. Poor hygiene and sanitation, inequities within the family, separation from young infants, and lack of maternal decision-making power must all be addressed directly in nutrition communication programming. And although messages may start out aimed at various individuals—health providers, husbands, volunteers, mothers, older siblings—collective problem-solving may be the most powerful recourse when problems are most severe, and the most vulnerable need help.

Summary

Nutrition

Nutritional deficiencies contribute to a large percentage of deaths associated with the other child survival interventions. In addition to focusing on the problems of moderate and severe malnutrition and micronutrient deficiencies, the public health community has recently turned its attention to the importance of undernutrition, which causes about 80 percent of nutrition-related mortality. Poor nutrition causes most harm in early life, particularly between 4 to 12 months of age.

Behavioral challenges are the most diverse of any health area. Interventions are often launched parallel to child survival efforts and parallel to each other. This document provides only a brief overview of the need to advocate for nutrition; the challenge of integrating nutrition in clinic- and community-based programs; and an outline of behavioral issues related to several major intervention areas.

ADVOCACY FOR NUTRITION

Nutrition is often a low priority in the Ministry of Health. The national nutrition policy may also be out of date or may exist only on paper—or not at all. Selected approaches to raise awareness and promote policies include:

- Organize scientific updates (conferences, etc.) to galvanize attention and clarify policies
- Focus multiple stakeholders on country nutrition data and cost of interventions—e.g., via PROFILES advocacy process
- Launch/join a regional network that can instigate government commitment
- Support NGO leadership, especially when joined in a strong network with focused strategies

ATTEMPTS TO INTEGRATE NUTRITION AT THE CLINIC AND COMMUNITY LEVEL

Nutrition is a lifecycle intervention that belongs everywhere and is owned by no one. Advocates have struggled to find the most effective entry points for nutrition interventions and to decide whether nutrition itself can serve as a platform for other child survival practices. Selected approaches¹ include:

Essential Nutrition Actions Framework (ENA)

ENA highlights six priority interventions and six specific corresponding contacts with the health system. ENA can serve as a conceptual checklist to assure that priority interventions are included in health delivery

¹ HEARTH (see page 159) another community-based approach, and is discussed under malnutrition. The strategic use of mass media can also be considered an “approach” to promoting changes in nutrition behavior.

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systems and counseling messages. ENA builds on a very similar earlier framework, the Nutrition Minimum Package (MinPak).

Community Growth Promotion

Regular weighing and charting of changes can help diagnose nutrition problems, make them “visible” to parents, and create an opportunity for counseling. Growth promotion (GP) has also been combined with other services. There have been some successful programs, but the number of ineffective GP programs has caused some to question how feasible this labor intensive approach is in developing countries.

Cross-sectoral Community Approaches

Malnutrition is strongly associated with poverty. Some programs link nutrition with other sectoral activities. The Credit with Education approach combines small-scale loans with training in small business skills as well as health and nutrition education. Women’s literacy programs, early childhood education (including day care for infants of women who work) have also been linked to improved child nutrition when combined with a focus on specific nutrition practices.

KEY INTERVENTIONS

Exclusive Breastfeeding through Six Months

Practices fall into two clusters: *early initiation* and *duration* of breastfeeding up to six months. For early initiation, programs have chiefly emphasized benefits *to the child* of colostrum. Breastfeeding’s dramatic benefits *to the mother* should also be promoted during birth preparation and at delivery. Initiation is strongly associated with place of birth. Institutional policies, training of providers, and good counseling aids are key. For home births, the family (especially the mother-in-law) is highly influential.

Common barriers to exclusive breastfeeding include:

- Belief that a baby needs water, especially in summer
- Belief that a mother can have “insufficient milk”
- Separation due to work outside the home

Few providers can provide good counseling. Training and job aides are needed. Home visits by peer counselors have been effective, and mother support groups have had some success. The conflict between work and breastfeeding is a major barrier and has not received adequate attention.

Complementary Feeding and Continued Breastfeeding

PAHO/WHO recently issued detailed guidelines on ten categories of feeding practices. Indicators are also being revised. The guidelines will allow for better advocacy and program development. Nutrition counseling in the field has often remained stuck on the basic food groups.

Formative research with help from nutritionists can identify a small number of feasible changes in feeding practices. Trials of Improved Practices (TIPS) help determine what is acceptable to mothers. Recommended foods should be incorporated in the IMCI “food box.” Common major offenders include:

- Foods are usually introduced *too early* (South Asia is the exception)
- Foods are poor *quality*, e.g., thin gruels
- *Frequency* of feeding is not adequate
- Little attention given to feeding during *recovery from illness*, which is a critical period

Nutrition is about care as much as about food. Children at greatest risk are often in the care of older siblings. *Who* feeds the child is often at the root of

what and *how often* the child is fed. Few interventions have focused on this crucial issue. In many cultures children are not adequately coaxed to eat; feeding an undernourished child takes special persistence. Feeding during *illness* and during *recuperation* require different beliefs and skills. Children may receive special foods during illness but parents are rarely aware of the need for additional meals during recovery. Illness is a key *moment of opportunity* for counseling, but providers rarely discuss feeding practices at that point (see box at right).

Infant Feeding in the Context of HIV

Counseling about feeding options is a critical part of any program to prevent mother-to-child transmission (PMTCT) of HIV. For most children in the developing world whose mothers are HIV positive, the risks of not being breastfed are greater than those of being infected through their mothers' milk *for about the first six months of life*. The mother who considers not breastfeeding should be counseled to choose replacement feeding (formula or home-modified animal milk) only if it is Acceptable, Feasible, Affordable, Sustainable, and Safe (AFASS).

The danger associated with *mixed* feeding (breastfeeding that is not exclusive) is higher than that of either breastfeeding alone or giving no breastmilk. Therefore, for those women who breastfeed,

- *Exclusive* breastfeeding behaviors are extremely important
- The infant must be *weaned rapidly* at about six months

No matter what a woman's choice, feeding practices are very challenging and require excellent ongoing counseling.

Is There a “Moment of Opportunity” for Child Nutrition?

Mothers are usually concerned about *what* and *how* to feed a child during illness. This is a valuable window for change that is usually completely overlooked.

During illness children tend to lose their appetites as well as their strength, causing mothers to be concerned about feeding. In many cultures families encourage a sick child to eat and offer special foods.

Although “key practices” for all the major childhood illnesses include advising a mother about how to feed her child during and after illness, few providers take the time—or even know what to advise. But this is the moment when mothers are most receptive to making changes. It is also the moment when changes can be most crucial. Children need additional food and patient attention during recovery. Families rarely understand this need.

Targeting children who are frequently ill is also a natural way of capturing those at highest risk. The first step is to ask questions about how a child is usually fed. The next is to negotiate specific small changes that will make a difference. *Care* is often the biggest challenge; it requires help from family members or others.

Vitamin A—Supplementation Strategies

Children 6 to 59 months should receive high dose vitamin A capsules twice a year. Successful distribution strategies have included vitamin A days (National Micronutrient Days) twice yearly; Child Health Weeks (vitamin A and a package of child health services) twice yearly; and generalized monthly health outreach (two selected months per year). All are campaign-like approaches and many of the behavioral issues are similar to those of immunization campaigns.

Vitamin A is a simple and generally a desirable product with few barriers.

- Young programs may have to reposition the product (which is known for protecting the eyes) to emphasize its broader “survival” value to children.
- Mature programs can focus on establishing the logistical norms: when, where, and for whom.
- Fears have centered on toxicity; rumors along this line have derailed at least one program.

Distribution strategies often depend heavily on semi-literate volunteers. Training to assure safety and job aids with key messages and answers to common questions are important. Successful programs have focused heavily on motivating and providing recognition for workers.

Vitamin A—Household Strategies

Household approaches include promoting consumption of vitamin A-rich foods and preservation techniques. Successful programs often collaborate with agricultural extension activities, especially kitchen garden or animal husbandry efforts (see fortification on page 159).

Efforts to improve the micronutrient value of the family diet require specialized nutrition research,

seasonal calendars, recipe trials, and product testing. Recommended dietary changes should be as simple and specific as possible. The best sources of vitamin A—animal products—are the most expensive and are usually reserved for males. Successful strategies have often included emphasis on *intra-household food allocation* and increasing women’s *control over resources* to purchase foods.

Iron and Anemia

Anemia can be caused by low dietary iron intake, malaria, helminth infections (such as hookworm or schistosomiasis), and sickle cell disease. Repeated infections are also linked with anemia. Prevention and treatment of anemia require an integrated strategy based on the local epidemiology. Low birthweight babies require iron supplements from *2 to 23 months of age*. WHO also recommends supplementation for children 6 to 24 months old where the prevalence of anemia is 40 percent or higher.

In areas where hookworm (helminth) infection is greater than 20 percent among children, WHO recommends twice yearly deworming for *children over two*. Deworming is often included in Child Health Weeks; it is appreciated by parents and can be promoted as a draw in connection with other services.

Animal products are the most important sources of iron. Agricultural projects promoting small animal husbandry and fishponds can improve children’s iron as well as vitamin A status. Consumption of whole grains reduces absorption, as does drinking tea with meals; however, even small amounts of vitamin C promote absorption. Various technologies also increase the bioavailability or absorption of plant-based iron. Any efforts to improve the family diet must consider these factors.

Zinc

In therapeutic trials zinc has been helpful in both preventing and treating childhood diseases. WHO and UNICEF now recommend that children with diarrhea should receive zinc supplements for 10 to 14 days to treat the illness and reduce recurrence. Any preventive strategies involving zinc would be more complex. To improve general stores, zinc must be taken regularly in small doses according to a child's age.

Food Fortification

Food fortification is a cost-effective and sustainable approach for reducing micronutrient deficiencies, making this an important approach to promote at the policy level. Food fortification requires understanding the benefits and barriers of both manufacturers and distributors, and good public private collaboration. Universal salt iodization has depended upon legislation and vigilant enforcement.

Whether or not fortification is mandatory, a new product requires careful consumer research and social marketing. Packaging, labels, logos, and positioning are crucial. Common food vehicles for different micronutrients include sugar, wheat and corn flour, salt, fats and oils, and milk. All of these staples may be associated with intangible qualities that the public may

fear altering. Suspicions of a hidden family planning agenda are also common in some regions.

Severe Malnutrition

Rehabilitation in the Home

Traditionally, severely malnourished children are rehabilitated in a hospital or therapeutic feeding center (TFC). Facility-based care is often not feasible even when accessible, because a family member needs to stay with the child for many days. Several trial programs of a home-based therapeutic care approach have shown that mortality and recovery rates can exceed those of facility-based interventions. A ready-to-use therapeutic food product (RUTF) is central to this approach. Rations are often shared with other family members and may be increased to allow for this.

Rehabilitation in the Community

The HEARTH/Positive Deviance approach looks for cost effective solutions to childhood malnutrition within the community by analyzing how poor but healthy children are fed. It promotes these “positive deviant” behaviors to parents of malnourished children through cooking demonstrations, guided group practice, and home visits.

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