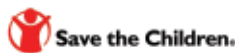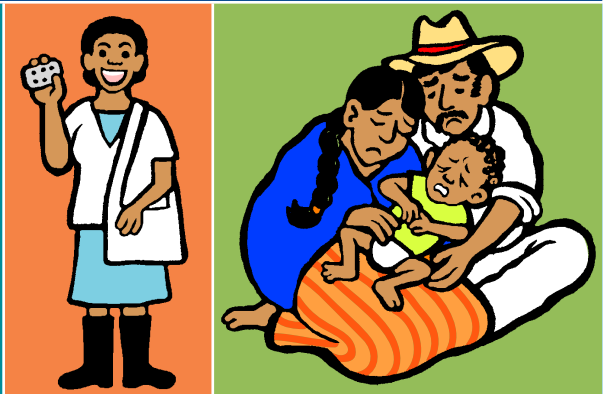# COMMUNITY CASE MANAGEMENT ESSENTIALS

Treating Common Childhood Illnesses in the Community

A GUIDE FOR PROGRAM MANAGERS

coregroup CORE Group fosters collaborative action and learning to improve and expand community-focused public health practices. Established in 1997 in Washington D.C., CORE Group is an independent 501(c)3 organization, and home of the Community Health Network, which brings together CORE Group member organizations, scholars, advocates and donors to support the health of underserved mothers, children, and communities around the world.

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Abstract

The leading causes of death among children under five years of age are well understood— yet efforts to protect the children most at risk have not kept pace with global goals. But now a growing body of evidence supports a new approach that may make a dent in childhood deaths from the biggest killers: pneumonia, diarrhea, malaria, newborn infection and malnutrition. Known as *Community Case Management of Sick Children (CCM)*, this approach sends community-based health workers out to find, diagnose, and successfully treat sick children, in partnership with their families.

Inspired by the classic *Immunization Essentials,* this guide methodically documents what is known about CCM and how to make it work. First, health program managers are introduced to the basics. Then, *CCM Essentials* walks its readers through the process of designing and managing a high-quality CCM program. The ultimate result: lives of newborns, infants and children saved around the world.

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Foreword

The publication of *Community case management essentials* is exceptionally well-timed. It comes at a moment of increasing need for community-based treatment of child illness. The global community and the governments of most developing countries have committed themselves to achieving the Millennium Development Goal of reducing infant and child mortality by two-thirds from 1990 levels. Most countries, however, are not on track to reach that goal… and analyses done in a number of those countries indicate that scaling up high impact interventions—especially treatment of pneumonia, diarrhea and malaria, newborn care, and nutrition—is critical to reach it. Community Case Management (CCM) is an important approach to increase coverage of these interventions, and also to increase the equity in child health services that is another major objective of child survival programs.

The timing is also good because there is now a solid body of evidence and experience that governments and their development partners can draw upon to develop successful CCM programs. A number of countries—Nepal, Pakistan, Honduras, Senegal, and others—now have well-established national CCM programs whose experience and approaches are reflected in this publication. Many international and national non-governmental organizations have worked with local and national governments to implement CCM as an element of their health programs, especially in underserved populations. All these experiences, along with the scientific studies that led to them, have produced the evidence and guidance that is provided here.

We know with certainty, for example, that well-trained, supervised and supported community health workers (CHWs)—literate or even illiterate—can successfully diagnose child pneumonia, malaria, or diarrhea and provide effective treatment. We know from several countries' at-scale experience that this approach actually increases the total numbers of children receiving appropriate treatment when they need it, rather than just changing the place where they get treatment. Operations research in Nepal has clearly demonstrated that allowing trained CHWs to provide treatment is far more successful in increasing appropriate care than just allowing them to refer cases. Studies of quality of care provided by well-trained CHWs implementing CCM indicate that this quality can equal or even exceed the quality of care often documented in public health facilities. The presence of trained health workers in communities themselves can increase not just the availability of services, but the knowledge and willingness of families to seek appropriate care.

For these reasons, more and more governments and development partners are recognizing the contribution that CCM can make to accelerating progress in child survival. Over forty countries have initiated some CCM activities; most, however, are not yet at scale. As these activities expand, and as more countries contemplate and initiate CCM, the experience, tools, and guidance contained in this publication can be of substantial value. It will be especially important for program managers, technical officers and consultants, as well as for those who wish to gain greater understanding of community-based public health programs. It is part of the continuing efforts of our community to apply the results of research and program experience in improving the survival, health and well-being of children, families, and communities around the world.

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For additional CCM resources visit: http://www.ccmcentral.com

CCMCentral website aims to centralize resources, provide examples of best practices and give access to tools on planning, implementation and monitoring of community case management of childhood illnesses.

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LIST OF ACRONYMS AND ABBREVIATIONS

ACTs	Artemisinin-based combination therapies
ADDO	Accredited Drug Dispensing Outlet (Tanzania)
AMW	Auxiliary midwife
BASICS	Basic Support for Institutionalizing Child Survival project / USAID
BCC	Behavior change communication
CCM	Community case management
CHW	Community health worker
C-IMCI	Community-Integrated Management of Childhood Illness
CRS	Catholic Relief Services
FCHV	Female Community Health Volunteer (Nepal)
GAPP	Global Action Plan for the Control and Prevention of Pneumonia
IMCI	Integrated Management of Childhood Illness
KPC	Knowledge, practices, and coverage
LHW	Lady Health Worker (Pakistan)
LiST	Lives Saved Tool
MBB	Marginal budgeting for bottlenecks
MDG	Millennium Development Goal
MOH	Ministry of Health
ORS	Oral rehydration salts solution
ORT	Oral rehydration therapy
RMF	Revolving medicine fund
RDT	Rapid diagnostic tests
RUTF	Ready-to-use therapeutic food
TBA	Traditional birth attendant
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

Section 1:

Introduction to Community Case Management and This Guide

Community case management: a proven strategy to increase use of evidence-based child survival interventions in communities

Community case management (CCM) is a strategy to deliver lifesaving curative interventions for common childhood illnesses, in particular where there is little access to facility-based services. A good CCM strategy

- addresses access to, quality of, and demand for CCM services;
- seeks to ensure that CCM has the support of decision-makers, health care providers, and community members; and
- is put into action in tandem with improvements in the health system.

CCM does not "stand alone." The best efforts upgrade the skills of existing cadres of community health workers (CHWs) so they can deliver curative interventions; such efforts also ensure strong links to existing health facilities.

CCM amplifies the treatment arm of Community-Integrated Management of Childhood Illness (C-IMCI). C-IMCI is the third component of Integrated Management of Childhood Illness (IMCI), which is a building block of a national child health strategy. IMCI encompasses improving (1) case management skills of health providers, (2) the health system, and (3) family and community practices. C-IMCI acknowledges that many sick children never reach facilities (and, indeed, many well children never receive preventive interventions).[2] Figure 1 depicts C-IMCI as a multi-sectoral platform supporting three elements:

1. community-facility partnerships;
2. community-based providers for care and information; and
3. key family practices for growth and development, disease prevention, home care for illness, and care-seeking for danger signs.

CCM is the second of these elements, but it is more than providing treatment in communities. It includes promoting timely care-seeking, encouraging appropriate home care, as well as referrals to and supervision from facilities.

FIGURE 1: HOUSEHOLD AND COMMUNITY IMCI
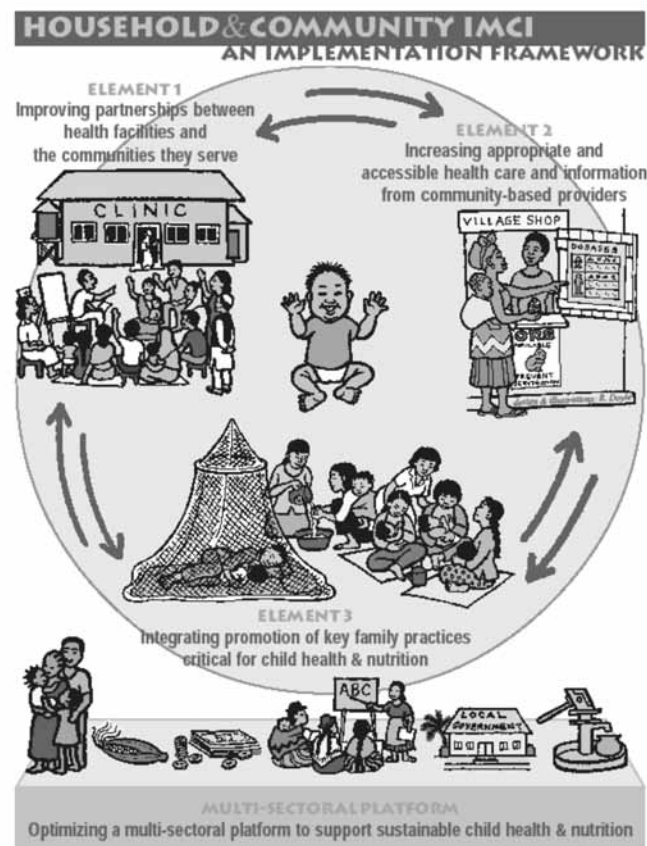
Source: Reaching communities for child health and nutrition

Purpose of the guide

The purpose of *Community case management essentials* is to provide operational guidance to design, plan, implement, monitor, and/or advocate for CCM that responds to local needs. It is a "how-to" guide for programs, rather than a source of clinical guidance. Definitive technical guidance for case management can be found in the WHO/UNICEF training package *Caring for the sick child in the community*,[3] the toolkits included in *Community case management essentials*, and/or national IMCI task forces.

Program managers at the district level, from ministries of health and NGOs, are the primary audience. Central-level planners, advocates, academics, and other

international health professionals will also find this guide useful. Drawing on experiences of the organizations that make up CORE Group and on the literature, this guide anticipates decisions and challenges that CCM program managers encounter.

The guide can be used to make decisions related to starting a new program, improving an existing one, or expanding CCM to new geographic areas. Many decisions are within the scope of stakeholders at the district and community level (managers, providers, community members); others require the involvement of stakeholders at the national level.

Organization of the guide. This section provides an overview of CCM and summarizes the evidence about it. A results framework is introduced as an organizing principle to guide decision-making for planning and managing CCM. Section II describes how to conduct a situation analysis. This is typically done when starting a new CCM program, but it also can help answer questions about existing programs or for planning for scaling up. Subsequent sections address how to accomplish each of the four intermediate results of the results framework. The only way to increase use of life-saving interventions—the strategic objective of CCM—is through achieving the intermediate results. A section on increasing use follows the sections on intermediate results. The final section looks to the future of CCM. Each section corresponding to the results framework includes

- an overview of the intermediate result, including sample indicators to portray the various aspects of the result that are typically desired;
- a summary of the strategies, interventions, and activities to achieve the result; and
- steps in planning, implementing, and monitoring the strategies and activities to achieve the result.

At the end of each section, related resources are listed. The materials in these toolkits include, among other resources,

- relevant policy documents, such as WHO/UNICEF joint statements;
- scientific and programmatic references;
- training materials;
- job aids, including CHW assessment and treatment guidelines; and
- country-specific document references.

A note on terminology. *Community case management essentials* employs several commonly used terms that may not have universally shared meanings. For purposes of this document, "use" refers to receipt of treatment through CCM. Many use "coverage" for the same or similar phenomena (such as immunization coverage). "Community health worker" (CHW) refers to the lowest or most peripheral level of frontline health workers. Countries are developing policies on CHWs' roles, responsibilities, and qualifications, and national practice, guidelines, and/or policy should determine what cadre of CHW is best suited for CCM. "Interventions" in the context of CCM are the household behaviors promoted and

lifesaving treatments delivered in the community by CHWs: antibiotics, antimalarials, zinc and ORS, and RUTF.

Overview of CCM

CCM targets the conditions that cause the most child death in developing countries. Among the leading causes of death among children under five years of age are pneumonia (17%), diarrhea (16%), malaria (7%), and neonatal causes (37%). About one-quarter of neonatal causes are newborn sepsis/pneumonia.[4] Undernutrition is estimated to be an underlying cause in 35% of all under-five deaths, even more so in those associated with severe infections.[5]

To date, experience with CCM has focused on these five conditions in children age two months to five years. Some programs address only one condition, while others provide community-based treatment for two or three (e.g., pneumonia and diarrhea). There is limited experience with integrated programming for all five conditions and for CCM with newborns (infants under two months).

CCM relies on evidence-based child survival interventions. A few interventions (defined as biological agents, commodities, medicines, or actions intended to reduce morbidity or mortality) have been proven to save the lives of newborns and children under five, at a price that is affordable in developing countries.[6] These interventions include preventive measures such as exclusive breastfeeding in the first six months of life and treatments such as antibiotics for pneumonia (Box 1). Together, the 30 or so interventions could eliminate more than 60% of child deaths each year if they could be delivered to families and children who need them. CCM expands the use of curative interventions, while supporting the use of preventive interventions.

Box 1: Evidence-based curative child survival interventions used in CCM[7]

These are the currently used interventions:
- antibiotics for dysentery
- oral rehydration therapy and zinc for diarrhea
- antibiotics for pneumonia
- antimalarials for malaria

In 2007, the World Health Organization (WHO), the United Nations Children's Fund (UNICEF), and other international organizations called for the urgent addition of ready-to-use therapeutic foods (RUTF) to the list of cost-effective, evidence-based interventions suitable for CCM of acute severe malnutrition.[8]

CCM brings curative health care to children in those communities that are hardest to reach. CCM is a strategy for populations that lack continual access to curative interventions, typically, but not exclusively, poor, rural communities. Among the world's countries, mortality is considerably higher in children who live in rural areas and in the poorest households.[9] Within countries, there are also inequities in access to care: children from the poorest families are less likely to receive proven child survival interventions, regardless of where they live.[10]

CCM utilizes trained, supervised community members, linked to facility-based services, to deliver interventions. These community members can be formal Ministry of Health (MOH) outreach workers, paraprofessional CHWs, of which there are many varieties, or private sector workers, among others (Box 2). Often, these workers already deliver preventive interventions through established C-IMCI programs or similar strategies. However, such existing CHWs may not provide common curative interventions to treat sick children in the community. Instead, they encourage caregivers to seek care at health facilities. All CHWs who deliver CCM require support, training, and supervision from facility-based services.

Box 2: Who are the CCM workers?

Strategies to deliver lifesaving interventions to poor children require local adaptation. Thus, community-based providers—the CCM workers—have varying characteristics and many different titles. Many are volunteers; others receive salaries or some other form of financial compensation. Examples of CHWs who provide CCM include
- *Agents de santé communautaire* (volunteer community health agents) in Rwanda and Senegal;
- *Brigadistas* (volunteer MOH health promoters) in Nicaragua;
- Female Community Health Volunteers in Nepal
- Lady Health Workers, salaried employees of the MOH in Pakistan;
- Traditional healers (bone-setters, circumcisers, herbalists) in semi-pastoralist Ethiopia;
- Accredited Drug Dispensing Outlet dispensers in Tanzania; and
- Village drug-kit managers in Mali.

Usually, but not always, CCM workers are literate.[11] Increasingly, they are the lowest level of paid health worker in the national health system, such as the Health Surveillance Assistants of Malawi and the Health Extension Workers of Ethiopia.

Many CHWs use adapted Integrated Management of Childhood Illness (IMCI) or similar syndromic guidelines for case management. Typically they
- receive the concerned caregiver and child;
- assess sick children by asking the caregiver questions and observing the child;
- classify the child's condition as urgent, requiring referral; sick, requiring home treatment; or not sick or other problems;
- treat with appropriate interventions;
- counsel the caregiver on home care and what to do in case the child does not improve; and
- follow up to assess status and treatment completion.

CHWs may perform their duties from their homes or from a community-constructed building. Others are based in government, NGO, or private health facilities.

CCM is consistent with practices recommended by WHO, UNICEF, and other international health agencies. WHO, UNICEF, and other international agencies have jointly called on countries to adopt and promote policies and programs that have strong community-based components to deliver interventions for diarrhea,[12] malaria,[13] pneumonia,[14] newborn care,[15] and acute severe malnutrition,[8] while improving services at first-level health facilities.

The rationale for CCM is strong

Nearly all of the world's child deaths occur in developing countries. Every day, on average, more than 26,000 children under age five die around the world. The majority live in 60 developing countries.[16] Sub-Saharan Africa accounts for almost half of all child deaths; South Asia has the second highest number of child deaths. Moreover, The under-five mortality rate in the least developed countries (according to the United Nations classification) in 2007 (130 deaths per 1,000 live births) was 18 times that in high-income countries (7 deaths per 1,000 live births).[17]

Most high mortality countries are not on track to achieve their Millennium Development Goals. Despite global progress in reducing child deaths, few of the 68 countries that bear the world's highest burdens of child mortality are making adequate progress to reach Millennium Development Goal (MDG) 4—reduce the under-five mortality rate by two-thirds between 1990 and 2015.[18] For example, the average annual rate of reduction in the under-five mortality rate observed for 1990–2006 in sub-Saharan Africa was 1.0%.[15] In order to achieve MDG 4, a rate of 10.5% reduction each year is required. In South Asia, the average annual rate of reduction in under-five mortality was 2.57%, although a 7.8% annual reduction rate is required to achieve MDG 4.

Use of lifesaving interventions is low in countries with high mortality rates. Child mortality rates are high when incidence rates and/or case fatality ratios are high. Deaths are more likely when the use of lifesaving interventions is low. Low use can be due to caregivers' lack of knowledge about when and where to seek care, the perceived and/or actual poor quality of available care, or care that is inaccessible because children live in communities far from health facilities and cannot access skilled health workers and lifesaving medicines. There has been little progress in increasing coverage rates for effective treatments for childhood illness. Only 56% of the children who suffer from suspected pneumonia are taken to appropriate health-care providers. [16] Only about one-quarter of caregivers know the key signs of pneumonia in children: rapid or difficult breathing. Only about one-third of children in the developing world with diarrhea receive the appropriate treatment.[16] Coverage rates are lower in countries with the highest mortality rates.[19]

Expanding the capacity to treat children without access to health facilities can increase use of these interventions.

CCM should be cost-effective in many settings. CCM complements facility-based services: both are needed to reduce child deaths in many settings. True, CCM adds to the total health-system cost, but it delivers treatments to previously unserved populations that may not be reached by a facility-based strategy. CCM requires training, supervising, and supporting workers in communities far from facilities, all of which may be costly.

The cost and cost-effectiveness of CCM are areas of ongoing study. In the meantime, many reasons support the use of CCM as a strategy for delivering curative interventions in communities where facility-based services are not available or feasible.

- CCM rests on science-based standards, just as facility-based care does. For example, CHWs can accurately count respiratory rates,[20] and fast breathing is a better predictor of pneumonia than auscultation.[21]
- Favorable experience in cost-recovery for medicines within CCM suggests that the strategy can be sustainable and that medicines can be available, although experience with sustainable supplies in CCM is limited.
- The improved geographic access of CCM can result in improved social access as well. For example, child caregivers can access services within their own communities. Good use of CCM services is likely.
- Better access to correct case management should mean earlier treatment, fewer advanced cases, quicker recovery, fewer referrals, and a lower burden on health centers than in settings without CCM. As shown in Table 1, treating non-severe pneumonia in the community costs more than treating it at a health facility. However, if not treated in the community, non-severe pneumonia could evolve into severe or very severe pneumonia, requiring more expensive treatment. Supportive activities to promote the use of CCM, such as household counseling by CHWs on care-seeking, are often needed to ensure that appropriate cases are treated by CHWs in the community.[22]
- Maintaining a CCM strategy may be more sustainable than attempting to maintain a freestanding health facility in a remote area, given that the turnover of CCM workers compared to their facility-based counterparts can be lower.[23]
- CCM targets hard-to-reach areas that typically have higher mortality rates than areas closer to existing health facilities. Thus, even though the strategy may be more costly per capita, the beneficial effect may be greater, yielding a favorable cost-effectiveness ratio. This is an area for study.

TABLE 1: COMPARISON OF PNEUMONIA TREATMENT COSTS IN LOW- AND MIDDLE-INCOME COUNTRIES AT DIFFERENT LEVELS OF CARE[24]

CONDITION	TREATMENT LOCATION	COST (IN US$)
Simple pneumonia	Health facility	2.00
Simple pneumonia	Community	8.00
Severe pneumonia	Hospital	82.00
Very severe pneumonia	Hospital	172.00

BOX 3: CCM BRINGS COST SAVINGS IN HONDURAS[25]

CHWs staff community health units in rural communities in Honduras, seeing more than 250 children under five in 64 communities each month. The average cost of treatment for a typical episode of child illness at the community health unit is only 3% of the overall national average in health facilities—US$ 0.48, compared to US$ 15.50.

In many countries uncontrolled use of antimicrobials is already widespread. Caregivers often treat sick children with chloroquine, antibiotics, and other medicines that are purchased in a local market or other community sources. In these circumstances, there may be few mechanisms to ensure correct prescribing, dosing, and adherence to treatments as well as the quality of the medicine. Sometimes, caregivers give antimicrobials left over from prior incompletely treated illness, often incorrectly. Properly trained, supervised, and supplied CHWs have the potential to reduce antimicrobial resistance through more rational use of antimicrobials.

Global leaders call for increased attention to and effort in strategies that extend beyond fixed health facilities to deliver essential health services at the community level. Leading global health organizations have highlighted that bringing lifesaving interventions to communities is crucial to improving child health. A recently completed multicountry evaluation of IMCI noted the "need for a shift [from]...delivery systems that rely solely on government health facilities... to include the full range of potential channels in a setting and strong community-based approaches."[26] Tracking country policies that allow for community treatment of pneumonia with antibiotics, carried out by the Countdown to 2015 for Maternal, Newborn, and Child Survival collaboration, is another indicator of the importance assigned to CCM.[27,18]

The number of countries using CCM is growing. Global momentum is building for CCM (Box 4).[28] A 2007 survey of policies, programs, and plans for CCM of pneumonia in 57 Countdown countries in Africa and Asia found that about one-third of the countries had supportive policies, and another third had no policy forbidding the strategy. Half the countries implemented the strategy, mostly on a small scale. About half of the countries that did not implement it planned to test or introduce the strategy.

Another survey conducted among the member NGOs of the CORE Group found that 18 NGOs had 44 CCM programs in 26 countries during the period 1998–2008 (Figure 2).[29] The scope of programs varied considerably: 75% treated fever with first-line antimalarials, 57% treated pneumonia with antibiotics, and 27% treated diarrhea with zinc and oral rehydration salts solution (ORS). Many treated more than one condition.

FIGURE 2: GEOGRAPHIC SCOPE OF CORE GROUP MEMBERS' CCM EFFORTS, 1998–2008

32 programs in Africa
8 programs in Asia
3 programs in Latin America
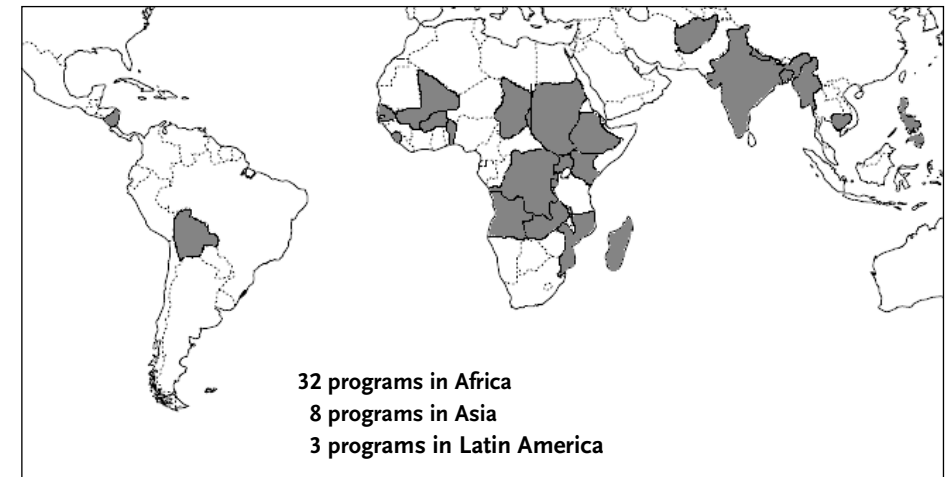
BOX 4: GROWING MOMENTUM FOR CCM IN SUB-SAHARAN AFRICA

Nepal has been a pioneer in CCM of pneumonia, beginning with research and pilot projects in the 1990s and ongoing expansion. Representatives from the Nepali program were part of a West Africa regional workshop in 2002, where they shared their experiences in CCM with NGO and MOH participants. The discussions at the workshop helped to inspire the MOH of **Senegal** to test the feasibility of adding CCM for pneumonia to the repertoire of community health volunteers who were already treating malaria and diarrhea. The success of the pilot project led leaders in the **Democratic Republic of Congo** to initiate CCM. The MOH in Senegal also decided to expand its program. During this scale-up in March 2006, Senegal hosted an international technical exchange on CCM, attended by representatives of 13 sub-Saharan countries. They agreed on country visits, Web-based exchanges, and follow-up meetings. National CCM Task Forces were established in all 13 countries, and **Madagascar**, **Niger**, **Rwanda**, and **Togo** began CCM for pneumonia. A 2008 conference in Madagascar brought together representatives from 18 sub-Saharan countries—some who came to compare the CCM programs they already had in place and others to learn how to establish one.

Strong evidence supports the effectiveness and quality of CCM

Programmatic experience with CCM is quite large, and a wide range of countries have implemented various forms of CCM for many years. Most programs have been evaluated, although published documentation is sparse. Very few community intervention trials have been conducted. Nevertheless, the published evidence from these evaluations and trials consistently shows that when CHWs are properly trained and supervised, the quality of care they provide is high, resulting in better health outcomes for sick children.

Well-trained CHWs can assess sick children and classify them according to guidelines. The results of studies that have examined CHWs' ability to perform clinical tasks such as assessment of sick children and correct selection of treatments, including age-appropriate doses, are almost uniformly positive.

Findings from important studies on CHWs' clinical competency include the following.

- CHWs can maintain both their knowledge and clinical competency several years after their initial training.[30]
- CHWs can adequately treat almost all malaria cases, although they sometimes have difficulty in treating children with multiple signs and symptoms.[31]
- CHWs can adequately assess and treat pneumonia, although assessment of signs such as rapid breathing and chest indrawing may require reinforcement training.[32]
- CHWs can correctly identify umbilical infections[33] and severe illness in newborns.[34]
- Mostly illiterate CHWs can correctly identify and treat pneumonia after training.[35]

CHWs can correctly manage diarrheal disease in children. Evidence comes from studies carried out in Guatemala, India, and Indonesia that CHWs can be successfully trained to assess sick children for signs of dehydration, instruct caregivers and demonstrate preparation of ORS, and counsel about the importance of continued feeding and fluids during the diarrheal episodes.[36,37,38,39,40]

As noted earlier, despite the significant contribution of diarrheal disease to child mortality, less than half of the children with diarrhea receive the appropriate treatment. Unfortunately, many programs currently do not train CHWs to identify signs of severe dehydration or dysentery, or to adequately counsel parents on management of diarrhea in the home.

CHWs can correctly classify children with pneumonia and manage pneumonia with oral antibiotics. As far back as the early 1990s, WHO found that CHWs are capable of managing pneumonia adequately in the community, using simple guidelines for classification.[20] Subsequent studies confirmed this finding.[32,35,41,42] Some studies found that CHWs have more difficulties managing severe disease;[32,35,42] they may fail to recognize chest indrawing, an indication of severe pneumonia,[32] or they may fail to refer cases to the hospital.[35] However, CCM has been shown to increase the proportion of children with pneumonia who receive effective antibiotics.[14,43]

Box 5: More evidence of the quality of CHW performance from Senegal

A 2003 operations research study in Senegal sought to answer two questions: Could community health volunteers (CHWs), correctly assess, classify, and treat pneumonia? And could they do this without misusing medicines? Observation of trained CHWs, review of patient registers, and interviews with caretakers provided the answer: a resounding "yes"! (Indeed, there was only one case of misuse, when one CHW was pressured to treat an adult.) Almost twice as many pneumonia cases were treated in study areas compared to control districts, demonstrating that more children were receiving necessary treatment.[44]

CHW management of pneumonia can result in mortality reduction. The WHO-commissioned studies and others[20,45,46,47,48] demonstrated that a standard case management strategy and active case detection can have significant impact on mortality among children under five. This convinced WHO and UNICEF to issue the joint statement on CCM of pneumonia.[14] Findings from these studies include the following.

- The recent update[49] of a meta-analysis[50] of pneumonia case management by CHWs estimated that CCM led to a 20% reduction in overall infant mortality and a 24% reduction of overall mortality among children under five years of age.
- Passive case detection by CHWs, along with community education, also significantly reduces both pneumonia-specific and all-cause mortality.[34,35,51,52,53,54]

CHWs can improve the management of malaria and increase the number of cases receiving appropriate treatment. Several studies suggest that overall management of malaria improves through community-based treatment, and some studies show that this improvement results in reduced malaria-related mortality. Examples are listed below.

- Presumptive treatment of malaria (providing antimalarials based on presence of fever in a high malarial area) by CHWs can increase the number of patients receiving treatment,[55, 56,57] increase the correct administration of medicine regimens in the home,[58] and decrease malaria morbidity and

parasitological indices.[55] With the changing epidemiology of malaria, WHO now recommends parasite-based diagnosis, even at the community level.[59]

- Interventions involving family-directed treatment of fever can lead to improved administration of antimalarial medicines in the home, especially when combined with the use of prepackaged treatment regimens.[60,61,62]
- Treatment of malaria by mothers in the home reduced overall and malaria-related mortality among children under five by 40% in Tigray, Ethiopia.[63]

CCM of severe acute malnutrition may improve overall treatment rates.
Traditionally, treatment of severe acute malnutrition[64] has relied on facility-based approaches, greatly limiting its coverage and impact.[8] However, over the past five years, increasing numbers of programs in a variety of country contexts (emergency, transitional, and developmental) have implemented CCM of severe malnutrition using ready-to-use therapeutic food (RUTF), an energy-dense food paste that is oil- rather than water-based, which prevents bacterial growth and makes refrigeration unnecessary.

A study of 21 Community Therapeutic Care programs[65] using RUTF in three countries showed an average recovery rate of 79.4% of children with severe acute malnutrition; 74% of the children were children treated as outpatients.[66] These programs can reach far more children than a comparable facility-based treatment program. The technology to produce RUTF is simple and can be transferred to any country with minimal industrial infrastructure. Locally produced RUTF cost about US$ 3 per kilogram. A child being treated for severe acute malnutrition will need 10–15 kilograms of RUTF, given over a period of six to eight weeks.[8]

CCM of multiple conditions is possible and effective, but challenges remain. Ideally, CCM should be integrated to include all relevant diseases, but the guidelines for assessment and classification are more complex and less well tested. Only a relatively small number of studies have examined the effectiveness of CHWs in managing a broader range of diseases, such as pneumonia, malaria, and diarrhea. Findings to date suggest the following.

- Such broader roles for CHWs improve the use of CHW services.[67]
- CHWs may have difficulty managing severe disease such as severe pneumonia, malaria, or dehydration, or they may have difficulty identifying key signs when multiple signs are present.[31,68,69]
- Complex assessment and treatment guidelines or algorithms may contribute to CHW difficulties in managing multiple and/or severe conditions.[31] The new CHW training package by WHO and UNICEF is designed to overcome this problem (Box 6). The treatment guidelines in the training package are based on the principle that CHWs should be able to identify severe disease, but are not expected to treat it.

Additional challenges for CCM include introducing it in high mortality countries (where it is most difficult to implement) and taking it to scale in countries where it has been introduced.

> **Box 6: WHO AND UNICEF DEVELOP TRAINING PACKAGE FOR CHWs ON CARING FOR SICK CHILDREN IN THE COMMUNITY[70]**
>
> UNICEF and the Department of Child and Adolescent Health and Development of WHO have developed a flexible but comprehensive three-part training kit, *Caring for newborns and children in the community*, to prepare CHWs to address multiple needs of newborns and children age 0 through 59 months. The second part, *Caring for the sick child in the community*, is directly relevant to CCM. It provides simple and science-based guidelines that literate CHWs can easily follow in treating children ages 2 through 59 months.
>
> Treatment guidelines in *Caring for the sick child in the community*, which should be adapted to fit national policies, focus on
> - referral of children with danger signs and
> - treatment in the community of
> ⇨ diarrhea
> ⇨ fever (malaria)
> ⇨ pneumonia (treatment or referral, depending on the policy of the country), and
> ⇨ feeding problems/malnutrition (referral for acute severe malnutrition).
>
> The first part of the kit, *Caring for the newborn at home*, addresses promotion of antenatal care and skilled care at birth, promotion of good care for the mother, care in first week of life, recognition and referral for danger signs, and special care for low-birth-weight babies.
>
> The final part, *Caring for the older child at home* (working title), directs attention to caregiving skills and support for child development, feeding of infants and young children, family response to a child's illness, and prevention of illness.
>
> For more information, please contact the WHO Department of Child and Adolescent Health and Development, CAH@who.int, attention B Daelmans, C Wolfheim, or the Health Program Division of UNICEF, attention A George, ageorge@unicef.org.

Despite international endorsement and supporting evidence, questions still remain about CCM

Although some important publications describe successful experiences with CCM, these experiences are limited either to small-scale comprehensive packages delivering all needed interventions[51,54] or large-scale selective packages delivering one or two curative interventions only.[43,71] Examples of comprehensive CCM that includes care for sick newborns are rare, as are CCM packages that reach national scale. Examples of large-scale, comprehensive packages are almost nonexistent. Moreover, some elements of CCM remain controversial in many settings. All of these questions, and more, are pertinent issues for operations research studies.
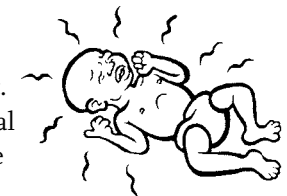
Evidence from trials in controlled settings shows promise for CCM of neonatal sepsis, but WHO and UNICEF cannot recommend this approach until data from studies in routine program settings are available.[15] Few studies have been conducted on CCM of sick neonates. Available data from controlled settings, mostly in South Asia, suggest substantial benefit of case management approaches using antibiotics for neonatal sepsis in community settings.[72] Findings from studies that examined CHW assessment and treatment of neonatal sepsis include the following.

- Treatment of neonatal sepsis by CHWs is both feasible and effective, resulting, together with other interventions, in significant decreases in case-fatality and neonatal mortality rates.[34,73]
- A pooled analysis of five controlled trials of CCM of neonatal sepsis showed a 27% reduction in all-cause neonatal mortality and a 42% reduction in pneumonia-specific mortality, although the precise contribution of antibiotics to neonatal mortality reduction could not be estimated.[72]

Despite these promising findings, the safety and long-term sustainability of CCM of neonatal sepsis need to be further evaluated in settings more representative of routine program operations and resource constraints. Currently, WHO and UNICEF recommend that CHWs conduct home visits to identify newborns with severe illness and assist families in seeking facility-based treatment.[15]

Some countries have policies that inhibit CHWs from administering antibiotics and/or antimalarials. This common policy stance is linked to the perception in many ministries of health that only professionally trained medical staff can appropriately diagnose pneumonia and malaria, and manage antimicrobial treatment, as noted above.

The evidence regarding antimicrobial resistance and CCM is not yet established. Misuse of antibiotics and antimalarials and the resulting increased resistance to their effectiveness are legitimate concerns. Nevertheless, quality CCM programs have the potential to decrease antimicrobial resistance because skilled providers who save lives will gradually displace self-treatment and treatment by unskilled providers. Correct assessment, classification, and treatment by CHWs are the core of CCM. Studies demonstrate that training facility-based health workers leads to reductions in the inappropriate use of antibiotics; CCM training for CHWs is likely to bring the same results.[74]

Using a results framework for decision-making about CCM

This guide uses a results framework to orient decision-making for planning and managing CCM (Figure 3). A results framework is both a planning and a management tool and is similar to program mapping, causal pathway, and other program frameworks. A results framework serves several important functions. It

- provides a basis for deciding what needs to be done to achieve a program goal, by describing the logical links between the goal and the intermediate results (or intermediate objectives);
- prompts the definition of indicators to track progress toward achieving results;
- helps to interpret program data to make decisions about program adjustments; and
- assists in communicating about a program by summarizing program intent and content.

FIGURE 3: ILLUSTRATIVE RESULTS FRAMEWORK FOR CCM

GOAL: Child mortality in District X reduced (where access to facility-based case management services is low)

Strategic Objective: Use of life-saving interventions in District X increased

Intermediate Result 1:	Intermediate Result 2:	Intermediate Result 3:	Intermediate Result 4:
Social and policy environment enabled	Access to and availability of life-saving interventions and services increased	Quality of services increased, demonstrated, or assured	Demand for services and behaviors increased

The strategic objective is the center of the results framework. The strategic objective describes the "what"—the service, medicine, commodity, and/or practice known to have a beneficial impact on health status that the beneficiaries should use. For example, increased use of antibiotics for pneumonia and ORS and zinc for diarrhea contributes to the overall goal of reduced mortality and improved health status. "Use" includes both receiving the intervention and adhering to its administration in the home.

Above the strategic objective is the goal—the ultimate purpose or "why" for a program—saving lives.

The four intermediate results are essential—and interrelated—steps toward achieving the strategic objective. They are the "how"—the activities and strategies that lead to increased use. These intermediate results can be described as follows.

- An enabled environment is one in which social and political factors at all levels, from the community to the national capital, encourage and support CCM. Strategies include policy advocacy; capacity-building at all levels, particularly the district and community; and planning for financial viability.
- Increased access to interventions and services results from reducing the barriers—from geographic to social—to obtaining treatment services for childhood illnesses and increasing the likelihood that the services are available when needed. CCM is a critical strategy to increase access. Increasing access includes activities to ensure adequate medicines and supplies and to facilitate referrals to health facilities for severe cases.
- Increased quality means that the technical quality of services is high and that communities perceive the services to be of good quality. Strategies and activities include training and supervision of CHWs, supervisors, and facility-based staff.
- Increased demand requires not only awareness of CCM services, but also timely recognition of illness and care-seeking as well as effective home management of sick children.

Increasing access to case management services is insufficient to achieve the increased use. Although CCM is a strategy to address low access to lifesaving curative interventions, CCM needs to accomplish all four intermediate results to have a possibility of success—to increase use of the interventions. Both the community and the policy environments must be supportive. The services must be of good quality. The community must know about and be inclined to request the services. The activities and strategies to achieve each intermediate result are mutually reinforcing and take place concurrently and at different levels within a health system.

Box 7: Using the results framework to explore barriers to access

Applying the results framework to analyze several situations helps us understand the wide range of factors that can limit mothers' and children's use of proven interventions. For each of the following situations, ask which intermediate result has not been achieved. In other words, what problem is preventing the mother from using interventions that could save the life of the child?

1. An experienced Guji mother from a remote village in southern Ethiopia fails to bring her lethargic newborn to a health facility for case management, despite urging by her CHW, because it is a two-day walk over semidesert footpaths.
2. An indigenous young mother in rural Guatemala fails to bring her obviously dehydrated infant for diarrhea case management at a facility (two kilometers away) because the provider has a reputation for treating sick children without even examining them.
3. A mother of five from a hill tribe in the highlands of Vietnam's Quang Tri province fails to go to a health facility that would provide pneumonia case management for her infant with cough and rapid breathing because she is unaware that these signs indicate danger and require prompt care-seeking.

The first situation, unlike the others, represents the common challenge of low access (intermediate result "access increased"). The case for CCM is especially compelling when the quality of and demand for existing case management services are good, but use is low due to limited access. However, even in these situations, the quality of CCM, both perceived and actual, must be high to encourage demand, and other activities are needed to ensure the community knows when and how to obtain services.

The second situation involves a baby whom the mother recognized to have danger signs and for whom she wanted to seek care. Indeed, the care was close at hand, but the quality (intermediate result "quality increased") of care was perceived to be poor, so she did not go. This situation suggests that efforts to improve client-provider relations at the facility, rather than initiating CCM, might be more effective at increasing use of lifesaving interventions.

The third situation illustrates that even experienced mothers can lack lifesaving knowledge, a determinant of demand (intermediate result "demand increased"). A mother will not ask for a service unless she knows and can recognize the situations that should prompt the demand—regardless of how easily accessible care is. Here, depending on the access to facility-based care, resources may be better invested in C-IMCI to promote recognition of and care-seeking for danger signs along with other essential household practices. In areas with limited or no access to health facilities, low demand does not rule out CCM. On the contrary, it requires a strong educational C-IMCI component.

More typically, access, quality, and demand are all low. In such cases, CCM should be part of a more generalized effort to strengthen the health system.

A note on terminology. This guide uses the acronym "CHW" (for "community health worker") throughout as a general term representing the many different community-based providers who deliver CCM. The term "caregiver" applies to the person or persons responsible for managing care and treatment of sick children—most often, but not exclusively, a mother. "Partners" refers to all the organizations or agencies with direct involvement in a specific CCM effort—ministries of health, national and international NGOs, donor and international agencies, and research institutions. Global technical leadership increasingly uses the word "medicine" instead of "drug." This guide has generally adopted this usage; some expressions such as "revolving medicine fund" may seem a bit unfamiliar at first. In addition, although the term "district" is not used universally, in this guide it refers to a subnational administrative unit where health authorities are responsible for a collection of health services and facilities. Depending on the setting, it could be a region, province, district, subdistrict, township, or municipality.

> **Box 8: Definitions: guidelines, algorithms, and protocols**
>
> Guidelines are the overall policy document describing the assessment, classification of symptoms and signs, and treatment process.
>
> Algorithms are decision-making charts or tools that show the sequence of steps in managing an illness and provide information for performing them.[75] Usually there are different charts for different age groups. Together the charts often make up a "chart booklet." Some countries, programs, or individuals may use the word "protocols" when referring to algorithms, but this term is often used interchangeably with "guidelines."

Ten things to remember in planning and managing CCM

Many of these recommendations apply to any health program; others are specific to CCM. All are based on extensive experience.

1. **Few districts, let alone countries, will need CCM for the whole population.** CCM is a delivery strategy for populations that lack continual access to curative interventions—the hardest to reach areas. In most districts, part of the population has continuous access to facility-based health services. These populations may not need CCM.

2. **CCM does not "stand alone."** CCM needs strong links to existing health facilities for support and supervision of CHWs and referrals for severe illness. CCM should take place in the context of improvements in the overall health system.

3. **Policies that limit CHW access to antibiotics and similar medicines are not necessarily an impediment to implementing CCM programs.** Most current CCM efforts began as small-scale demonstration or pilot projects in a confined area, with the aim of generating experience to inform policies—particularly data on CHWs' ability to evaluate sick children adequately and dispense medicines correctly. This information contributed to subsequent policy changes. In addition, CHWs can perform many useful activities, such as identifying sick children and referring them for care, even if they are unable to dispense medicines.
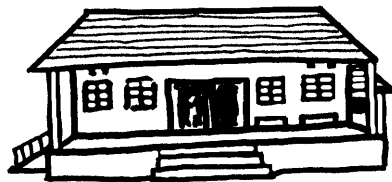
4. **Start where success is more likely.** This applies to both initiating and scaling up CCM. Communities with widespread participation and dynamic leaders and districts with enthusiastic management teams are the most likely settings for success. These can serve as models (or "living case studies") for other policy makers, managers, and communities, thereby building support, motivation, and momentum for replication and expansion.

5. **The best CCM programs build on existing institutions and programs for sustainability.** Building on existing organizational structures—community health committees, CHWs who already deliver preventive services, district health facilities with good quality IMCI services—facilitates the institutionalization of CCM. Maintaining activities, services, and roles, and integrating them into ongoing, established programs are essential to sustainability. Separate or parallel organizational structures may yield results more quickly in the short term but ultimately are less likely to last.

6. **Interventions can be added incrementally, if full integration is not possible.** As noted above, the evidence for and experience with CCM programs that address multiple conditions are limited. Programs often begin with a combination of CCM for two conditions and then add a third or fourth, as was the case in Senegal, where pneumonia treatment was added to the tasks of CHWs already treating malaria and diarrhea (Box 4). A gradual approach often allows for initial success, contributing to sustainability.

7. **Use CHW tasks and records as a starting point for creating monitoring and evaluation systems.** Monitoring and evaluation systems are at the center of program management. Managers as well as communities and decision-makers especially want information to determine whether CHWs are doing what they are expected to do and, if not, why, as well as how they could be better supported in carrying out their tasks. Record-keeping forms used by CHWs and their supervisors should correspond to defined CHW competencies and tasks; together, these suggest the principle indicators for monitoring and evaluation, such as correct assessment and management of sick children.

8. **Plan for sustainability and scaling up from the outset.** The long-term success of CCM—sustainable programs that benefit more children—rarely occurs through afterthought. Planning should include strategies for institutionalization of activities, ensuring financial viability and fostering community competencies. Plans also need to consider how other districts or parts

of the health system can eventually benefit from a small-scale effort—how a project can become a program on a larger scale.

9. **Engage all current and potential stakeholders throughout the process.** From community members to officials of the MOH and politicians, many people have a stake or interest in CCM, or might have one in the future. Active stakeholder participation from the beginning is not always easy to ensure, and it is often time-consuming. But it produces a sense of "ownership" and lays the ground for the sustainability and expansion of CCM.

10. **CCM is an evolving strategy, and thus this guide is a "living document."** CCM is the subject of ongoing learning, and definitive answers for many questions are not yet available. Although this guide reflects the current "state of the art," it is not the final say in management of community-based treatment. In fact, the hope is that it will be a "living document" to which individuals and organizations with experience in CCM can continually contribute their materials and lessons learned.

To foster such a learning community, *Community case management essentials* and the materials in its toolkits are also available on the Web at http://www.coregroup.org/ccm/ccm_resources.html. New content can be submitted (as attachments) by email to ccmguide@coregroup.org.

Toolkit: resources for an introduction to CCM

Policy documents/joint statements

Community-based management of severe acute malnutrition: a joint statement by the World Health Organization, the World Food Programme, the United Nations System Standing Committee on Nutrition and the United Nations Children's Fund. Geneva, WHO/World Food Programme/United Nations System Standing Committee on Nutrition/UNICEF, 2007.

Implementing the new recommendations on the clinical management of diarrhoea: guidelines for policy makers and programme managers. Geneva, WHO, UNICEF, Johns Hopkins University Bloomberg School of Public Health, and USAID, 2006.

Roll Back Malaria partnership consensus statement: Assuring access to effective malaria case management. Geneva, Roll Back Malaria Partnership, March 2004.

WHO/UNICEF joint statement: Clinical management of acute diarrhoea. Geneva and New York, WHO and UNICEF, 2004 (WHO/FCH/CAH/04.7 or UNICEF/PD/Diarrhoea/01).

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Sazawal S, Black RE. Effect of pneumonia case management on mortality in neonates, infants, and preschool children: a meta-analysis of community-based trials. *Lancet Infectious Diseases*, 2003, 3(9):547–556.

Winch P et al. Intervention models for the management of children with signs of pneumonia or malaria by community health workers. *Health Policy and Planning*, July 2005, 20(4):199–212.

Programmatic guidelines

Caring for the sick child in the community. WHO Department of Child and Adolescent Health and Development, CAH@who.int, attention B Daelmans, C Wolfheim or the Health Program Division of UNICEF, attention A George, ageorge@unicef.org.

CRS [Catholic Relief Services] *C-IMCI handbook*. Second English edition. Baltimore, MD, Catholic Relief Services, 2003.

Reaching communities for child health and nutrition: a proposed implementation framework for HHC/IMCI [Report of workshop "Reaching communities for child health: advancing PVO/NGO technical capacity and leadership for household and community integrated management of childhood illness (HH/C IMCI), Baltimore, MD, CORE Group and BASICS II, 17–19 January 2001."] Washington, DC, CORE Group and BASICS II, 2001.

Section II:

Analyzing the Situation to Make Decisions

A situation analysis provides information for planning a new CCM effort or improving an existing one

A situation analysis is both a process and a product to describe a current state of affairs—both needs and assets on which to build or improve sustainable CCM. The process involves the participation of stakeholders in planning, data review and collection, and analysis and interpretation. It builds partners' capacity to describe and suggest responses to complex health service delivery problems. The information gathered during the situation analysis informs program planning for CCM. The product can be a report, presentation, and/or workshop to stimulate resource mobilization and nurture supportive policy. Ultimately, a situation analysis can identify strategic opportunities to save lives by improving access to health services through CCM.

Decide if the conditions are right for investing resources in conducting a situation analysis

Prior to deciding to conduct a situation analysis for a new CCM effort, national-level leaders, donors, and other decision-makers will likely ask if CCM is feasible and has the potential to bring about beneficial health outcomes. A desk review of secondary data and interviews with a few knowledgeable partners or informants can indicate the presence of conditions that give good reason for pursuing a situation analysis and possible subsequent efforts to establish CCM. These conditions include the following.

- The illnesses that can be treated through CCM cause high mortality.
- The use of case management at health facilities is low or modest, due to distance or other barriers. (The toolkit at the end of this section contains a worksheet for estimating projected use of CCM.)
- Because of poor access to facilities, use of lifesaving interventions will

predictably remain low, regardless of levels of demand or service quality.

- The policy environment is suitable to consider CCM. For example, national-level leaders support initiation of activities, even if current policies inhibit CHWs from administering antibiotics or antimalarials.

BOX 9: CALCULATING THE POTENTIAL BENEFITS OF CCM[76]

Donors, policy makers, managers, and other stakeholders are likely to ask whether CCM will increase the use of case management services. One way to answer that question is to calculate treatment ratios, comparing actual service utilization for the condition(s) of interest seen in facilities to the expected number of cases in the population served.

Example:

Population of children under five in District X = 53,060

Episodes of childhood pneumonia receiving treatment through facility-based care in District X in 2007 = 4,003

Epidemiological modeling[77] predicts that the children in this country will experience 0.3 episodes of pneumonia per child year (0.3 x 53,060 = 15,918 cases). Thus the treatment ratio in 2007 is 25% (4,003/15,918), suggesting that many cases go untreated. After CCM was introduced in 2008, the number of cases seen through CCM and facility-based care increased to 9,302, yielding a treatment ratio of 58% (9,302/15,918), which is reassuring and suggests that CCM did increase use of case management.

Policies that limit CHW access to antibiotics and similar medicines are not automatic barriers to planning for CCM. Favorable policies regarding CCM are not necessarily required before undertaking a situation analysis. National leaders frequently want evidence from their own countries to inform new policy directions. By including influential stakeholders in the situation analysis, the process can also create local or national champions. These individuals can become effective advocates for CCM because they have persuasive facts, eyewitness testimony, a good understanding of the CCM strategy, and enthusiasm from working with other CCM experts.

When skepticism about CCM is high, evidence from countries that have implemented CCM may sway decision-makers to move ahead with a situation analysis. Section III, "Enabling a Supportive Social and Policy Environment," outlines approaches and activities for creating support for CCM.

Decide which specific settings (districts) might be appropriate for CCM and conducting a situation analysis

Districts where a large proportion of the population is hard to reach will benefit from CCM. To determine which settings might be appropriate, first consider the goal of CCM—decreased mortality.

- Does the mortality rate in the proposed settings justify the possible consideration of CCM?

Data on rates, absolute numbers, and patterns of infant and under-five deaths can help to determine the need for CCM. Reviewing as much of the following information as is available for the country or a proposed program setting can suggest answers in the following areas:

- under-five mortality rate (overall and cause-specific);
- infant mortality rate (overall and cause-specific);
- regional and urban/rural variation in mortality rates;
- trends in mortality over time;
- proportion of deaths occurring at home or in the community; and
- distribution of causes of death, by age and other demographic characteristics, when possible.

Then consider the strategic objective of CCM: increased use of lifesaving interventions.

- Is the use of existing case management services at facilities low or modest?
- If yes, which barriers are responsible for this low use? (Distance, poor quality services, lack of demand, etc.)
- Is there an existing cadre (CHWs or others) that could deliver CCM?
- Is CCM the best strategy to address these constraints?

Overview of a situation analysis

If the conditions are right and the need for CCM is established, then a step-by-step process can be followed to plan and carry out a situation analysis.

Steps in a CCM situation analysis. With the exception of the first step, the nature of activities may vary, according to the situation.

1. Define the purpose and objectives.
2. Become familiar with critical matters in planning a situation analysis.
3. Define the scope of the situation analysis: basic, intermediate, or comprehensive.
4. Review existing data and collect new information for each element of the expanded results framework.
5. Analyze and interpret data.
6. Disseminate findings.
7. Incorporate stakeholder feedback.
8. Prepare an action plan in response to findings.

Using the results framework in a situation analysis. The results framework provides conceptual guidance for all steps in the situation analysis. Figure 4 presents the results framework introduced in Section I, with two additional boxes. These are shown in gray because they are not results but issues that influence the intermediate results. "Strategies and programs for each intermediate result" are current or planned programs and services that affect how the result can be achieved. "External factors" are factors outside the health system that may help or hinder the effect of the planned strategies and intermediate results and the strategic objective and goal. External factors might include macroeconomic policies, food security, political violence, or other facts beyond the control of program managers or the MOH. Information about both kinds of factors is critical for deciding whether CCM is an appropriate delivery strategy in a particular environment and for determining how best to implement CCM in a specific setting. A situation analysis should describe the state of the issues included in each box in the amplified results framework.

FIGURE 4: EXPANDED RESULTS FRAMEWORK SHOWING EXTERNAL FACTORS AND STRATEGIES
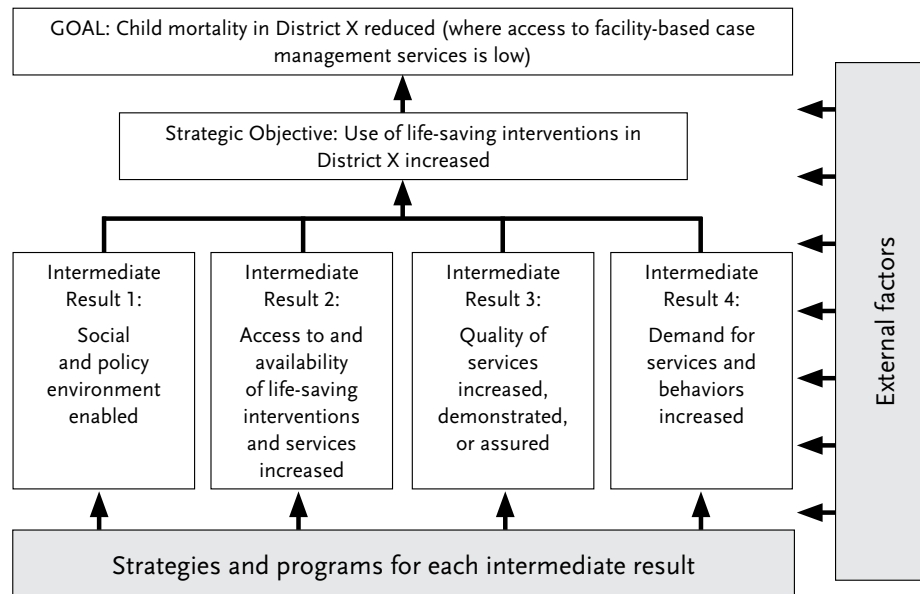
A situation analysis for CCM ideally gathers data to inform the issues addressed in each of the eight boxes in the expanded results framework. Four boxes (goal, strategic objective, result 1 [social and policy environment], and result 2 [access]) are essential. The remaining four boxes (result 3 [quality], result 4 [demand], strategies, and external factors) are supportive for a complete understanding of the situation.

The first four boxes are essential because the information obtained can confirm
- high mortality due to CCM-treatable conditions,
- low use of case management services,
- low access to case management, and
- a supportive policy environment.

Information collected about the four supportive boxes may describe
- the likely additive roles of quality and demand on use,
- the current strategies and their state of implementation for each intermediate result, and
- important external factors that may be influencing results now—and that may do so in the future.

Step 1. Define the purpose and objectives

The purpose and objectives of a situation analysis depend on the stage of development of a program and the positions of decision-makers on CCM. A situation analysis usually seeks to answer one or more of four questions. In many settings the questions are intertwined and can be addressed through the same situation analysis process.
- Starting a new CCM effort or developing a demonstration or pilot project where policy is supportive. Question: How could CCM best be implemented in a specific setting?
- Obtaining evidence of the need for CCM where policy makers are skeptical. Question: Is CCM an appropriate service delivery strategy for this setting or population?
- Improving an existing program. Question: What needs to be done to address specific problems with ongoing CCM?
- Scaling up. Question: How can the benefits of a successful small-scale project be extended to more people?

Step 2. Become familiar with critical matters in planning a situation analysis

The following issues are critical considerations in systematic planning for a situation analysis.

Stakeholders to involve, including representatives from
- international agencies,
- national IMCI Task Force or equivalent child health advisory bodies,
- NGOs,
- bilateral aid agencies,
- universities, and
- local governments.

These may be supportive partners or essential stakeholders. All can become effective advocates (champions) for CCM.

Participants on the fieldwork team may include
- a senior technical advisor and writer,
- a representative of the MOH,
- researchers skilled in qualitative and/or quantitative methods,
- data analysts,
- translators,
- community liaisons,
- drivers, and
- logisticians.

Knowledge needed on fieldwork team
- familiarity with the MOH, bilateral donors, international agencies, and international and local NGOs
- understanding of culture at the community level and in the health system
- mastery of focal technical areas (e.g., IMCI, malaria, pneumonia, diarrhea, or malnutrition) and community-based service delivery

Skills needed on the fieldwork team
- ability to speak local and/or national languages
- qualitative research
- quantitative research (e.g., experience with household surveys and/or health management information systems)
- writing, speaking, negotiating, and facilitating

Collectively, a strong team will have all of the knowledge and skills outlined above.

Orientation for the fieldwork team. Ideally, team members participate in defining the purpose and objectives of the situation analysis. Prior to beginning fieldwork, all team members need a basic understanding of how CCM operates.

Sites to visit. The team should plan to visit
- the MOH at the central, provincial, and district levels to ensure these stakeholders are aware of the purpose of the situation analysis;
- health facilities and health posts (outreach sites);
- CHWs, including existing CHWs and private sector or informal providers; and
- caregivers, households, and community leaders in the proposed program area(s) in order to develop an in-depth understanding of access, quality, demand, and service utilization from the household and community perspective.

> **TIP**
> **Select poor-performing, best-performing, and "typical" field sites**[78]
> Specific criteria for selecting areas for field visits are critical to obtain a representation of "typical" conditions. Visits to the best performing districts may yield information that cannot be generalized across different districts. Seeing the best facilities is important, but visiting the ones that perform less well provides essential complementary information.

Ethical review. Although a situation analysis does not entail trials or experiments of clinical, therapeutic, or biomedical interventions, it does involve observing people and obtaining information from them as well as using existing records (service delivery data). Team members should consult with institutional or national ethical review committees and guidelines in designing a situation analysis and, if necessary, obtain approval to carry it out.

Work spaces. An NGO office, MOH office, hotel with seminar rooms, or another space where the team conducts analyses, drafts a report, and prepares presentations is needed, as are adequate numbers of computers, particularly if extensive analysis of quantitative data must be performed. Ability to project slide shows displaying situation-analysis results should also be considered.

Situation-analysis product(s). Dissemination of findings to stakeholders is essential and usually includes
- written reports for internal documentation or to meet donor requirements,
- workshops, seminars, and meetings, and
- action plans or proposals for additional assessment, programming, or policy shifts.

Step 6 below discusses dissemination in greater detail.

Time required. Beginning with the due date for the final product and moving progressively back in time yields an estimate of the time needed. For example, ask the following questions.
- When are the conclusions, the final data, the first draft, the data analysis, or the majority of the data required?
- When will the team be in country? In the field? For how long? This will depend on the number of sites visited, distance, and ease of access by vehicle or other means of transportation. Fieldwork typically requires two to three weeks, depending on the scope of the situation analysis.

> **TIP**
> **Monitor the scheduling of important events**[78]
> Monitoring the scheduling of some important events can avoid conflicting activities and also allows the team to take advantage of scheduled activities. For example, a scheduled meeting of all regional health and key MOH officers is an opportunity to inform and learn from stakeholders.

Resources—needed and/or available. A situation analysis requires human, financial, and material resources that can vary widely from one setting to another.

A budget usually includes
- materials and supplies, including photocopying;
- facilities for teamwork and dissemination activities;
- transportation and per diem; and
- printing and distribution for situation-analysis product(s).

Depending on national policy, donor norms, and negotiations for the time of individuals who are not personnel of the sponsoring institution, salaries and/or honoraria may be included, e.g., for secretaries, drivers, etc.

The actual costs depend on the local economy, the number of team members, the duration of fieldwork, the number of sites to be visited, and the nature of dissemination activities.

Step 3. Define the scope of the situation analysis: basic, intermediate, or comprehensive

Familiarity with the planning activities provides the basis for making decisions about the scope or type of situation analysis best suited for the specific situation. A situation analysis can range from basic to comprehensive depending on many factors, including the intended audience, the purpose(s), and the resources required and available. Table 2 summarizes the three types.

TABLE 2: TYPES OF SITUATION ANALYSES

	BASIC	INTERMEDIATE	COMPREHENSIVE
Audience	NGO project manager and MOH partners at district level	MOH and NGO partners, possibly with academic partners (district or regional level)	MOH and partners at national level
Illustrative purposes (questions)	• Is a CCM pilot project in part of the impact area useful & feasible? • Can the MOH be convinced to test CCM at small scale? • Why is an existing program not achieving an intermediate result and what can be done to improve the program?	• What are the potential effects of CCM in this setting? (E.g., changes in mortality, service utilization, access, quality, demand, etc.) • How can CCM best be designed?	• Should CCM be a national policy? • If so, in what geographic areas?
Resources required	Low	Modest	Modest to high

Other considerations in making a decision about the scope include the following.
- the illnesses or conditions to be examined (Is a new integrated program addressing two, three, or more illnesses under consideration? Or is the focus on adding an intervention into an existing CCM effort?)
- the age groups most affected by the conditions
- the number of team members
- the number of sites to be visited and the criteria for their selection
- the ratio of team members to available vehicles
- the degree of detail needed in the data collected
- the degree of confidence required in the findings, analysis, and interpretation

Finally, the level of resources available also has an impact on the kind of situation analysis. The resources, in turn, are determined by the entity that initiates the situation analysis and by the nature of the decision to be made about CCM (e.g., pilot project vs. national roll-out, or something in between). The toolkit at the end of this section contains an outline of illustrative data needs for each of the eight boxes for the three types of situation analyses.

A basic situation analysis may be adequate under certain circumstances. Sometimes a situation analysis must be simple and low cost, especially when resources are scarce. A basic assessment at the district or regional level might involve NGO program managers and their counterparts in the district-level MOH and seek to determine whether a CCM pilot would be appropriate in a limited geographic area. This approach may suffice provided that the low access is due to flawed or nonexistent strategies for reaching the most vulnerable people and not due to sound strategies that were poorly or partially implemented. (A situation analysis may be needed to generate these conclusions.) A common scenario fulfilling these criteria is with an NGO program area, where the implementing partners have in-depth understanding of their relatively small impact area as well as the authority to revise or augment their budget(s) to support a new strategy.

The following questions, informed by the results framework, are typical of a basic situation analysis.
- Does the mortality rate justify the possible consideration of CCM?
- Is the use of current case management services low?
- If so, what constraints are responsible for this low use?
- Are case management services too far away to be considered accessible by community members?
- If so, will bringing services closer to communities significantly increase use?
- Are people concerned about quality of current case management services?
- Are families aware of when and where to seek care?
- Which issue should be addressed first?
- What is the best strategy: CCM, something else that would strengthen use of existing services, or both?

Many countries choose an intermediate situation analysis. A middle ground is a common choice. An NGO or district manager leads the situation analysis, which focuses on identifying needs and strategies for a CCM pilot project. Participants include national-level MOH representatives who may become advocates or champions for CCM.

A comprehensive situation analysis calls for national-level leadership and expanded data collection. A situation analysis may also need to generate data to convince national leaders to invest in CCM, to persuade external institutions for funding or permission, and/or to plan for large-scale programming. Such a more comprehensive assessment likely requires national-level MOH leadership and the participation of donor agency representatives and might also call for expanded data collection in order to characterize regional variation in service provision gaps.

Develop a plan for fieldwork and dissemination. The plan should detail the critical matters outlined in step 2 as well as the activities entailed in steps 4 through 8.

Step 4. Review existing data and collect new information for each element of the expanded results framework

The results framework presented above suggests the information to be collected for the situation analysis.

Conduct a desk review of published statistics, peer-reviewed literature, and unpublished reports ("gray literature"). Regardless of the scope of the situation analysis, desk review of available data helps to refine questions to be answered during fieldwork and saves valuable time. A literature review yields data related to the goal (under-five mortality), including mortality rates, variations by region, trends over time, and causes of death. It will also identify data about the strategic objective and the many factors affecting the intermediate results—from practices affecting care-seeking to new approaches to improving CHW training. A desk review typically includes the following sources.

- Demographic and Health Surveys (DHS), which now include wealth quintiles for subgroup analysis
- *Global atlas of infectious disease*
- *State of the world's children* (UNICEF)
- Countdown to 2015 reports
- World Bank reports
- MOH routine service statistics
- Poverty maps
- "Gray literature" such as NGO reports and other country-specific documentation
- Multiple indicator cluster surveys (MICS) (UNICEF)

> **TIP**
> **Start the desk review early**[78]
> The team needs to use the information from the review for planning as well as data analysis. A desk review may require extensive work and an individual with experience, time, and communication resources to carry it out.

- The *Lancet* Child Survival series (2003), particularly the epidemiological profiles
- INDEPTH, an international NGO that consists of 37 health and demographic surveillance system (HDSS) sites in 19 countries in Africa, Asia, Central America, and Oceania
- PubMed search for epidemiologic and qualitative information about the target diseases, care-seeking, and access to services in the country or region of interest
- NGO data

Select data collection methods according to the scope of the situation analysis and the nature of the question. Basic and intermediate situation analyses collect health service statistics at the national/subnational, district, and facility levels. They also collect original data through qualitative approaches such as observation, focus groups, and in-depth interviews with health workers, community members, and caregivers. Comprehensive assessments might also conduct household surveys. Data collection methods also depend on team members' skills in quantitative and qualitative data management and analysis. The toolkit at the end of this section contains several resources on qualitative and quantitative data collection and analysis as well as sample formative research data collection instruments.

> **TIP**
> **Keep interview questions to the minimum necessary**[78]
> In-depth interviews of more than one hour will fatigue both the person being interviewed and the interviewer. The team can avoid this by limiting the data collected to that which is essential, rather than "nice to know."

Plan how to describe the state of the issues in each box in the framework. The lists below suggest the broad issues to explore for each of the boxes in the expanded framework. The toolkit contains more detailed versions of these lists (worksheets) for use in designing or adapting data collection instruments.

Goal: reduce child mortality

The team should collect and review data on rates, counts, and patterns of infant and under-five deaths for the country or program setting, including the following, where available.

- under-five mortality rate
- infant mortality rate
- regional and urban/rural variation in mortality rates
- trends in mortality over time
- proportion of deaths occurring at home or in the community
- distribution of causes of death, by age and other demographic characteristics, when possible

Strategic objective: use of lifesaving interventions increased

All or part of the following information may be collected to develop a comprehensive description of service provision and service utilization for target conditions.

- service utilization levels and rates for diseases or syndromes of interest, ideally for 12 months
- expected number of cases in the population for diseases of interest
- case definitions, including classification, diagnosis and complaint
- seasonality (useful for interpreting trends in service statistics)
- other general indicators of service utilization, e.g., measles immunization, antenatal care visits, etc.
- quality, completeness, and reliability of health management information systems

Diverse sources provide information on service utilization. Important sources of existing data include

- national surveys;
- MOH or NGO survey data;
- previously published research; and
- service statistics from outreach records, health centers, and hospitals in the target area, usually aggregated by district. (See the worksheets "Ongoing research" and "Completed research" in the toolkit.)

Some information, such as trends in care-seeking at formal health facilities, may require original data collection through record review at the facility or district level.

Intermediate result: social and policy environment enabled

A situation analysis addresses the factors that may facilitate or inhibit a supportive environment for CCM at the national, district, and community levels.

National
- policies that authorize CCM (Use of antimalarials, antibiotics, zinc, rapid diagnostic tests [RDT], etc. by CHWs)
- experience with CCM: pilot project or test site
- opportunities to "test" or pilot CCM
- policy advocacy and champions for CCM (see the worksheet "Champions and experts" in the toolkit)
- policies that support or encourage community participation in the health system
- essential medicines: list of national and international pharmaceutical houses producing CCM medicines
- potential partners: NGOs, research institutions, MOH departments, etc. (see the worksheet "Potential partners" in the toolkit)

District
- systems or structures linking health facilities with the communities they serve

Community
- community characteristics
- community participation in health
- availability and use of mother/child card, birth plans, and similar home-based tools

At all levels
- presence of facility-based IMCI
- current and planned strategies and activities to encourage an enabling environment for CCM
- external factors (those not under the control of a project manager)
- potential for sustainability
- readiness for scale-up or expansion

Most of these data can be collected through interviews at each level.

Intermediate result: access to lifesaving interventions increased

Factors to explore that affect access include
- the percentage of the population living within five kilometers (or other locally accepted definition) of an officially licensed or recognized health facility offering standard case management using IMCI or other national guidelines (private medicine sellers, village injectionists, and other informal providers are not included);
- current sources of health care: major service providers; role of the private sector, informal sector (private medicine sellers, etc.), and traditional healers in care for target illnesses;
- barriers to access: temporal, geographic, economic, and cultural;
- existing cadres of CHWs—current roles and potential to deliver CCM interventions (the worksheet "Who does what?" in the toolkit suggests a way to characterize CHWs);
- feasibility of integrated CCM: the number of interventions to include in the package;
- potential role of private-sector providers;
- access to essential medicines and supplies for CCM;
- referral systems;
- relationships between the MOH and NGOs: existence of an NGO umbrella organization or network; and
- current and planned strategies and activities to increase access.

Data sources to describe access include
- maps showing villages or communities and the location of health facilities within a specified radius (often five kilometers);
- Demographic and Health Surveys and similar household surveys;
- qualitative approaches, such as key informant interviews, focus groups, and home visits with caregivers to provide an understanding of access and

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barriers to care-seeking;
- review of the formulary and data on stock-outs from district pharmacy and health center records; and
- review of documentation on current child health/primary health strategies and programs.

Intermediate result: quality of services increased, demonstrated, or assured

A situation analysis looks at the issues that affect both actual and perceived quality. These include
- existence of national protocols for standard case management for disease specific to CCM;
- provision of treatment in accordance with protocols for standard case management;
- perceived quality of care at facilities and by community-based providers: in general and for CCM-treatable conditions;
- supervision systems: quality assessment methods, frequency, supervisor-to-worker ratio, etc.
- training: frequency, content, methodologies;
- community/community management structure role in quality assurance;
- monitoring and evaluation of quality: information systems; and
- current and planned strategies and activities to increase quality.

Data sources include
- case management protocols;
- health-facility assessments conducted by the MOH, NGOs, international agencies, or other entities;
- client exit interviews at health facilities;
- interviews with managers and facility-based providers;
- focus groups with caregivers;
- review of training curricula, manuals, materials, and methods; certification criteria and procedures;
- household surveys; and
- review of documentation on current child health/primary health strategies and programs.

Intermediate result: demand for services and behaviors increased

Most factors that affect demand for services arise at the household and community levels, such as
- illness recognition by caregivers;
- treatment practices in the home;
- care-seeking outside the home;
- correct administration of treatments and/or adherence to referrals; and
- current and planned strategies and activities to increase demand.

Data sources include
- qualitative research studies,
- review of facility and/or CHW records,
- interviews with managers and facility-based providers,
- focus groups with caregivers,
- household surveys, and
- review of documentation on current child health and primary health strategies and programs.

External factors

Teams may have limited time, resources, or capacity to fully evaluate the possible impact of external factors on a proposed CCM effort. Nevertheless, some factors are readily evident. When national-level policy decisions or the development of large-scale CCM are under consideration, it is particularly important to assess issues that can affect sustainability and the potential to reach larger populations with CCM. These factors may include
- political instability,
- upcoming elections and changing administrations,
- ethnic factionalism, and
- recent natural disasters.

Positive external factors may include disease-specific programs and funded mandates, which could help support CCM, such as the Global Fund to Fight AIDS, Malaria, and Tuberculosis, and the U.S. President's Malaria Initiative (PMI) and President's Emergency Plan for AIDS Relief (PEPFAR).

Step 5. Analyze and interpret data

Analysis and interpretation are two different steps after (or during) data collection. For quantitative data, analysis involves putting the data together to show overall results. Interpretation involves deciding what these results mean or their implications for programming. Box 10 provides examples of analysis and interpretation of quantitative data. Analysis and interpretation of qualitative data are often more iterative, that is, information that emerges during fieldwork can guide additional data collection. Overall data interpretation focuses on identifying gaps in coverage, service provision, or service utilization. The worksheet "Gaps and major lines of evidence" in the toolkit is a tool for organizing evidence, aiding the development of clear, concise messages for communication to policy makers and program planners.

BOX 10: ANALYSIS AND INTERPRETATION OF QUANTITATIVE DATA

The situation-analysis team collected data on child mortality in district X and proceeded to analyze it following the steps described below.

- Aggregate service-based data for children presenting with "fever" or who were diagnosed with malaria.
- Estimate missing data and add these to the aggregate.
- Divide this new total by estimated incidence rates of fever to estimate the level of care-seeking for "fever."
- Stratify (subanalyze) the level of care-seeking by important factors, such as severity, sex, season, and geographic access.

To interpret the data, the team

- compared overall care-seeking in district X with the national indicator and concluded that care-seeking in district X is low;
- compared care-seeking in district X by sex and concluded that there is no gender preference in care-seeking;
- compared care-seeking in district X by geographic access and concluded that almost no family from subdistricts A, C, and F seeks care after the rainy season, when "fever" peaks;
- examined the relationship to these findings and other data collected: communities in these areas regard existing services positively, caregivers are generally knowledgeable about childhood danger signs, but the roads are barely passable during the rainy season; and
- concluded that important parts of district X experience a gap in care-seeking for fever, much of which is probably due to malaria.

Analyze and interpret data in a participatory manner. Although one team member may be assigned to quantitative analysis, the interpretation of data, particularly qualitative or narrative information, engages all members of the team.

Step 6. Disseminate findings

Dissemination of findings involves the use of multiple forms, with diverse audiences in mind. The final product of the situation analysis may include one or more of the following.

- An informal report for internal sharing
- An external report for the MOH
- A concise summary for a proposal
- An in-depth presentation for a technical audience
- A brief presentation for district health officers
- A manuscript for publication

Two of the most common formats are:

Written report. Often one version is prepared in the national language for presentation and advocacy purposes, and translated or altered to satisfy the needs of donors and/or the reporting needs of the headquarters of an international NGO.

Presentation and discussion. A more or less formal presentation and discussion with the district health management team in the area where the fieldwork was conducted is recommended. Depending on the scope and visibility of the situation analysis, a national level workshop with influential stakeholders may also be useful. This could include presentation of major findings, discussion, and "validation" by a group of technical advisors and policy makers.

Step 7. Incorporate stakeholder feedback

Feedback from stakeholders may be gathered through formal review of the situation-analysis report, and more often through informal channels such as discussions at the dissemination meeting. Whenever possible, the team incorporates stakeholder feedback into final written documents. Securing formal support from stakeholders at this stage may also help get a pilot project off the ground or make later policy advocacy more effective.

Step 8. Prepare an action plan in response to findings

Developing an action plan follows dissemination to stakeholders, including MOH and other partners in the districts where fieldwork was conducted. Action plans may have one or more components. The responsibility for developing the action plan depends on the scope of the assessment, political will and interest at multiple levels, and the investment required from specific stakeholders. For example, an NGO manager and his or her counterpart at the district level, who are interested in piloting CCM, might develop a project proposal and advocacy messages to the MOH to permit testing in a limited geographic area. The MOH typically leads larger-scale action plans, involving policy changes, pilot projects in multiple districts, or significant public sector investments.

Possible action or responses to the situation analysis. The findings of the situation analysis together with stakeholder feedback typically suggest one or more of the following.

Additional assessments: Additional community and facility assessments, in partnership with national stakeholders, may produce a better characterization of the situation. The primary outcome is a definite decision on if and where CCM is an appropriate strategy, and to sketch out a program design. Secondary outcomes are more thorough data to encourage national and international partners to invest in the strategy and to build capacity.

CCM pilot project: A pilot or demonstration project in partnership with the MOH can test the feasibility of CCM in an inaccessible subdistrict. The outcome is a model demonstrating how to provide quality CCM and to increase the use of curative interventions within the local context. Additional outcomes are locally relevant tools and procedures (draft training materials, job aids, registers, etc.).

Technical consultation: Presenting the situation-analysis findings at a meeting of a national technical advisory group of stakeholders and potential donors can generate consensus on the need for CCM and an outline of how to proceed to obtain resources to respond.

Operations research: Conducted in partnership with national and/or international academic or research institutions, operations research can be designed to evaluate specific questions about CCM, e.g., the cost-effectiveness of certain elements or how to best involve the private sector in delivery of integrated CCM. Operations research yields country-specific (and perhaps globally relevant) evidence to inform policy and investment. It also enhances national research capacities.

Introduction of new interventions or activities into existing CCM: Existing CCM that addresses only one or two illnesses may integrate an additional lifesaving intervention, e.g., incorporating treatment of diarrhea with zinc into a program addressing pneumonia and malaria. A "problem-specific" situation analysis that explores reasons behind shortcomings in existing programs usually results in the design of new or the improvement of ongoing activities. For example, if caregivers do not administer antimalarial medication properly, a program may provide refresher training in counseling for CHWs and develop new materials to help mothers recall dosing instructions.

Scale-up: Successful small-scale CCM may be ready to serve as a model (center of excellence or demonstration site) for replication in additional districts. This produces a plan for the gradual scale-up of CCM and more local advocates and technical resource people.

Weigh the advantages and disadvantages of possible actions. Depending on the purpose of the situation analysis, one or more of these options might be possible in a specific setting. Characterizing each option according to its advantages and disadvantages, as related to internal (possible partners) and external (environmental) factors, helps to determine which option is the most feasible and promising. Table 3 illustrates some of these factors as applied to the option of a CCM pilot project.

TABLE 3: ILLUSTRATIVE ADVANTAGES AND DISADVANTAGES OF A CCM PILOT PROJECT IN DISTRICT X

	ADVANTAGES	DISADVANTAGES
External	• High mortality setting and high proportionate mortality due to CCM-treatable illnesses • MOH experience with CCM elements through vertical programs (i.e., community malaria workers) • Two bilateral donors interested in the approach	• Extreme MOH policy reluctance to allow CHWs to prescribe and dispense antibiotics • HIV/AIDS common, perhaps complicating syndromic CCM approach • Two or three influential opponents • Likely test areas very remote and expensive to work in, at least US$ 12/beneficiary/year
Internal	• District health officer (Dr. X) supportive • International NGO with on-the-ground presence, technical capacity, and experience • University partner (Dr. Y) enthusiastic	• Dr. X and Dr. Y out of country for next 18 months • NGO in existing impact area for only 14 more months

Prioritize options. The responsibility for selecting among the strategic options belongs to the intended audience(s) or decision-makers. Often, one or more of these influential people are members of the situation analysis team. Even if influential decision-makers are not part of the assessment, the team can exert influence over the selection of options by prioritizing them. Prioritization involves comparing options according to important parameters, scoring them for each parameter, totaling the scores, and ranking them accordingly. Typical important parameters deal with cost, political and donor support, likely beneficial health outcomes, scalability, sustainability, operational feasibility, timeliness, and others. Teams select their own criteria, depending on the purpose of the assessment. Table 4 provides an example of the outcomes of a prioritization exercise of three possible options.

TABLE 4: SAMPLE PRIORITIZATION MATRIX

Rate each item: 1 = low, 2 = medium, 3 = high

	CRITERIA						
OPTION	**PARTNERS' STRENGTH**	**POLITICAL SUPPORT**	**FINANCIAL SUPPORT**	**POLICY EFFECT**	**PROGRAM EFFECT**	**ETC.**	**TOTAL**
A: Pilot project of 2 interventions	2	2	2	2	2		10
B: Pilot project pneumonia, malaria, and diarrhea integrated CCM	1	3	1	3	3		11
C: Technical consultation	3	2	1	1	1		8

The first prioritization matrix will help to clarify thinking. After scoring, tallying, and ordering the options, the team needs to consider the ranking. If the results are surprising, this may mean that the initial scoring system had flaws. In the example above, strategic option B scored the highest, closely followed by Option A. However, it is possible to question the wisdom of selecting option B, in light of the low level of critical financial support and institutional capacity to carry it out. In this case, the team may want to weight some factors more highly or only consider options that meet certain qualifications.

BOX 11: MORE PRACTICAL TIPS FOR SITUATION-ANALYSIS TEAMS[79]

1. Keep the end in mind, at least generally. Be able to briefly explain the purpose of the situation analysis, the central question, the decision to be made, and the likely implications of the decision. Dummy tables (empty tables with labeled row and column headings) clarify thinking about how best to organize data.

2. Prepare briefing packets for stakeholders. Include in the packets preliminary tables of indicators, dummy tables, a brief CCM concept paper in the national language, and reprints of one or two technical papers.

3. Prepare well for post–data collection debriefings with stakeholders, including the sponsoring institution and potential future donors or partners. Prepare brief, organized presentations (1–2 pages with 10–15 slides), using PowerPoint or another software package. Include photographs from field visits to illustrate gaps and opportunities and add interest, color, and a human dimension. Decide in advance who plays what role in these important meetings.

4. Remember that debriefings usually mark a formal end to field visits but not the final conceptual step. On the contrary, feedback from debriefings may highlight errors, input gaps, or untapped resources, which need to be explored.

5. Weigh the advantages and disadvantages of large teams. Multimember teams are challenging to manage, especially considering individuals' skills, interests, and language abilities; the number of interpreters; and the number of vehicles. Try to avoid more than two or three individuals at the same input-gathering event (e.g., interview, record review). Sometimes the fewer present, the higher quality the input, perhaps because roles are clearer and the assumption that someone else is taking notes is less likely.

6. Ensure that team members are familiar with important aspects of local culture, especially during community visits, i.e., greetings, seating, footwear in a home, accepting refreshments, touching children, photography, etc.

7. Make efforts to hold daily late afternoon or evening regroupings to brief all team members on input, to clarify understanding, and to commence preliminary analysis and interpretation. Help solve any problems team members may have had. Evolving interpretation may take unexpected directions, requiring revisions in fieldwork itineraries.

Toolkit: resources for a situation analysis for CCM

Research guides

Baume C, Kachur SP. *Improving community case management of childhood malaria: how behavioral research can help*. Washington, DC, Academy for Educational Development/Support for Analysis and Research in Africa (SARA) Project, 1999.

Haaland A, Molyneux S. *Quality information in field research: training manual on practical communication skills for field researchers and project personnel*. Geneva, WHO, Special Programme for Research and Training in Tropical Diseases, 2006.

An inventory of tools to support household and community-based programming for child survival, growth and development. New York, UNICEF, 1999.

The knowledge, practices, and coverage (KPC) tools:
- Survey instruments: Rapid CATCH (core assessment tool on child health)
- Indicators
- Sampling practices
- Data tabulation plans
- Guidelines for writing the survey report
- Additional resources
- *The rapid health facility assessment (R-HFA)*. Child Survival Technical Support (CSTS+) Project, MEASURE Evaluation, and CORE Group, 2006.

Scrimshaw NS, Gleason GR, eds. *Rapid assessment procedures: qualitative methodologies for planning and evaluation of health related programmes*. Boston, International Nutrition Foundation for Developing Countries (INFDC), 1992.

Winch PJ et al. *Qualitative research for improved health programs: a guide to manuals for qualitative and participatory research on child health, nutrition, and reproductive health*. Washington, DC, Department of International Health/Johns Hopkins University, School of Hygiene and Public Health for Support for Analysis and Research in Africa (SARA) Project, Academy for Educational Development, January 2000.

Examples of situation-analysis/assessment reports

Adeya G et al. *Assessment for the introduction of zinc and the revitalization of diarrhea case management in Madagascar*. Rational Pharmaceutical Management Plus (RPM Plus), A2Z Micronutrient and Child Blindness Project (A2Z), Helen Keller International (HKI), and BASICS for USAID, 2006.
- Includes country assessment tool in appendices.

A study of referral non-compliance in the ARI strengthening program. JSI Nepal, 1997.

Worksheets

WORKSHEET: Potential for use/increased use of CCM services

The purpose of this tool is to consider the information that can yield an overview of the use and potential use of CCM-treatable conditions. Most data can be found in existing documents or through record review at the district or facility level.

For programs planning to scale up, the worksheet also lists factors related to the readiness to expand the CCM strategy.

DATA RELATED TO USE OR POTENTIAL USE OF CCM	DATA SOURCE
• Service utilization rates for diseases or symptoms of interest	
• Expected number of cases in the population	
• Case definitions, including classification, diagnosis and complaint)	
• Seasonality (useful for interpreting trends in service statistics)	
• Other general indicators of service utilization, e.g., measles immunization, antenatal care visits, rates of skilled birth attendants at delivery, postpartum visits, etc.	
• Classification of severity across levels of the health system	
• Quality and reliability of health management information systems	
READINESS FOR SCALE-UP OR EXPANSION	
• Credibility and persuasiveness of evidence from pilot project	
• Need to adjust/adapt activities and strategies based on findings	
• Nature and extent of support/constituency for CCM at various levels in health system and among stakeholder groups: advocacy needs	
• Availability of tools and methods for implementation	
• Capacities for supervision	
• Potential partners and partners' organizational capacities	
• Availability of technical assistance to support scaling up	
• Sources of financial support for scaling up	

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WORKSHEET: "Who does what?"
Child survival interventions by community-based provider (Illustrative)
The purpose of this tool is to allow systematic characterization of existing cadres of CHWs and perhaps to suggest the most suitable for "upgrading" to deliver CCM interventions.

Interventions ranked by overall effect on child survival[7]	Auxiliary midwife (AMW) (6 months' training)	Health Surveillance Assistant/ Health Extension Worker (1 year's training)	CHW (30 days' training)	Etc.
PREVENTIVE				
Breastfeeding				
Insecticide-treated nets				
Complementary feeding				
Zinc				
Hib vaccine				
Clean delivery				
Water, sanitation, hygiene				
Antenatal steroids				
Vitamin A				
Newborn temperature control				
Tetanus toxoid				
Neverapine/replacement feeding				
Antibiotics for premature rupture of membranes				
Measles vaccine				
Intermittent presumptive malaria treatment in pregnancy				
TREATMENT				
Oral rehydration therapy				
Antibiotics for pneumonia				
Antibiotics for sepsis				
Antimalarials				
Newborn resuscitation				
Zinc				
Antibiotics for dysentery				

Interventions ranked by overall effect on child survival[7]	Auxiliary midwife (AMW) (6 months' training)	Health Surveillance Assistant/ Health Extension Worker (1 year's training)	CHW (30 days' training)	Etc.
Vitamin A				
RUTF				
OTHER INITIATIVES				
Invermectin for onchocerciasis				
Case detection and management, community education for dracunculiasis (Guinea worm disease)				
Etc.				

WORKSHEET: Gaps and major lines of evidence*
The purpose of this tool is to prompt the situation analysis team to organize, characterize, and reference its argument.

GAP	EVIDENCE	WHEN AND WHERE	WHO	SOURCE
Use of antibiotics for childhood pneumonia is low				
	Etc.			
Use of antibiotics for neonatal sepsis is low				
	Etc.			
Use of antimalarials for childhood malaria is low				
	Etc.			
Etc.				

*adapted from Save the Children's "Saving Newborn Lives-2" planning packet

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WORKSHEET: Champions and experts*

The purpose of this tool is to capture and characterize potential advocates and sources of technical assistance.

NAME	AFFILIATION	EXPERTISE	ACTIVITIES COMPLETED OR PLANNED
Etc.			

adapted from Save the Children's "Saving Newborn Lives-2" planning packet

WORKSHEET: Potential partners*

The purpose of this tool is to capture, and inform comparisons among, potential partners.

PARTNER	MANDATE	PRIORITY AND OBJECTIVES WITHIN CCM	CCM ACTIVITIES & SCALE OF ACTIVITIES	RESOURCES COMMITTED/ ANTICIPATED FOR CCM	POTENTIAL TO PARTNER
Etc.					

adapted from Save the Children's "Saving Newborn Lives-2" planning packet

WORKSHEET: Ongoing research*

The purpose of this tool is to systematically capture and characterize relevant ongoing research.

TITLE	PRINCIPAL INVESTIGATOR/ PARTNERS	FUNDER	RESEARCH QUESTION	COMPLETION DATE	WHAT WILL WE KNOW? POLICY & PROGRAM IMPLICATIONS? PRELIMINARY RESULTS?
Etc.					

adapted from Save the Children's "Saving Newborn Lives-2" planning packet

WORKSHEET: Completed research*

The purpose of this tool is to systematically capture and characterize relevant completed research.

TITLE	PRINCIPAL INVESTIGATOR/ PARTNERS	FUNDER	RESEARCH QUESTIONS	DURATION	MAIN RESULTS & IMPLICATIONS FOR POLICY & PROGRAMS
Etc.					

adapted from Save the Children's "Saving Newborn Lives-2" planning packet

Sample formative research tools for CCM[80]

RAPID HEALTH SERVICES ASSESSMENT

Thank you for sharing some of your valuable time to talk to us today. We are interested in learning about caring for sick children in your catchment area. Is that OK? Do you mind if we take notes?

THEME	#	QUESTION	RESPONSE
Identifying information	1	Health facility name	
	2	Health facility type	
	3	Interviewer	
	4	Date	
	5	Informant	
Staffing	6	Planned facility staff	
	7	Facility staff deployed today	
Service availability	8	Days of operation	
	9	Hours of operation	
	10	How many days last month was there no provider at the facility?	
	11	Can sick children be seen, if necessary, at 2 a.m.?	
	12	Can sick children be seen on weekends?	
Catchment area	13	How many villages are in the catchment area?	
	14	What is the population of the catchment area?	
	15	What is the time (walking or paddling against the tide) from the farthest community in catchment area for this facility?	

THEME	#	QUESTION	RESPONSE
Catchment area (cont.)	16	How many of the catchment area villages have a CHW or AMW?	
	17	How many of the catchment area villages were visited last month?	
	18	Do you use a supervisory checklist?	
Training & supervision	19	Did the main child care provider receive any training last year?	
	20	Did the main child care provider ever receive IMCI training? If so, when?	
	21	Did this facility have a supervisory visit last month?	
	22	Did they use a supervisory checklist?	
	23	Which of the following data are recorded in the register? (circle all)	1. name 2. age 3. first vs. revisit 4. village 5. diagnosis 6. treatment
Register review	24	How many sick children < 5 were seen last month?	
	25	How many sick children < 5 had pneumonia last month?	
	26	Pneumonia treatment ratio (observed/expected)	*To be computed later.*
	27	Sick child treatment rate, annualized	*To be computed later.*
Inventory	28	What is the first-line childhood pneumonia medicine?	
	29	Was there any stock-out of the first-line childhood pneumonia medicine last month?	
	30	What is the first-line childhood malaria medicine?	
	31	Was there any stock-out of the first-line childhood malaria medicine last month?	

SITUATION ANALYSIS

THEME	#	QUESTION	RESPONSE
Inventory (cont.)	32	Was there any stock-out of ORS last month?	
	33	What do you do if you have a stock-out?	
	34	Do you have an IMCI patient management algorithm?	
	35	Do you have a thermometer?	
	36	Do you have a container to mix ORS?	
Case management		Say, "Now I'd like to ask you about caring for a sick baby. Suppose a six-month-old infant comes with cough and difficult breathing. What would you do?... Anything else?... Anything else?" (Tick each of the three that is mentioned. Do NOT prompt.)	
	37	*Unprompted:* Check for danger signs?	
	38	*Unprompted:* Check for fast breathing?	
	39	*Unprompted:* Check for chest indrawing?	
	40	Say, "When you check the breathing rate, do you use a timer with a second hand? Can you show me?"	
	41	Say, "This sick baby actually had a respiratory rate of 55, but had NO chest indrawing. How would you classify this case?"	
	42	Say, "The baby, in fact, had pneumonia. How would you treat this case?"	
Other	43	Thank you so much! Is there anything else you would like to tell us? Do you have any questions?	

Thank you very much for sharing your experience. I think we have learned a lot!

FOCUS GROUP DISCUSSION GUIDE: 6–12 mothers of children < 5 (draft Sep 21, 2008)

Interviewer name:	Village:
Date:	Township:
Time (start):	Participants and number:
Time (end):	Closest health facility:

Thank you for sharing some of your valuable time to talk to us today. We are interested in learning about caring for children from your village who get sick. Is that OK? We would like to hear from everyone, so don't be "shy." Do you mind if we take notes? We are not writing down names, so your thoughts will be confidential.

THEME	#	QUESTIONS & PROBES	RESPONSES
Identification	1	Village name	
	2	Total population	
	3	Total households	
	4	< 5s	
	5	Distance (time) from nearest health facility	
	6	Frequency of outreach clinic	
	7	Content	
	8	MOH health workers in the village?	
	9	Who?	
	10	Responsibilities	
	11	Other sources of care: quacks	
	12	Other sources of care: medicine shops	

THEME	#	QUESTIONS & PROBES	RESPONSES
Illness and home care	13	**What are the most common < 5 illnesses in your village?**	
	14	What do you mean by "diarrhea"?	
	15	What do you mean by "pneumonia"?	
	16	What do you mean by "malaria"?	
	17	**What do you do at home for diarrhea?**	
	18	For fever?	
Danger signs and care-seeking	19	**How do you decide if a baby needs care outside the home?**	
	20	Any other signs?	
	21	Who decides?	
	22	What if husband is away in the field?	
	23	What if there is cash expenditure?	
	24	Where do you go?	
	25	How do you get there?	
	26	How do you know someone will be there?	
	27	What do you do if no one is there?	
	28	Do you expect to pay for care at government facilities? How much?	
Quality of care	29	**What makes you happy or satisfied with outside care?**	
	30	Anything else?	
	31	If not already mentioned, ask the following: Don't have to wait?	
	32	Effective?	

THEME	#	QUESTIONS & PROBES	RESPONSES
Quality of care (cont.)	33	Clean?	
	34	Private?	
	35	Free?	
	36	Other?	
	37	What is the single most important factor of all these?	
	38	**Are the instructions received there easy to understand?**	
	39	Why or why not?	
	40	Did you ever leave that place a bit confused?	
	41	Can someone tell us an example of some instructions?	
	42	Were you able to follow the instructions?	
	43	Why or why not?	
	44	What makes it easier to follow instructions?	
Referral	45	**Sometimes health workers recommend referral to larger facilities. Did this ever happen?**	
	46	What was the reason?	
	47	Did the referring worker help with the referral? How?	
	48	Did the worker offer to accompany you and your child?	
	49	Did you accept the referral?	
	50	Why or why not?	
	51	What happened at the referral site?	

THEME	#	QUESTIONS & PROBES	RESPONSES
Referral (cont.)	52	How long did you wait before treatment was started?	
	53	What happened at discharge?	
	54	What instructions did you receive?	
	55	Were you able to follow the instructions?	
	56	Why or why not?	
	57	What makes it easier to follow instructions?	
ONE Case	58	This can be difficult to talk about, but did any children die in your village last year? What happened?	
	59	How long was the baby sick?	
	60	When was care outside the home first sought?	
	61	Could anything be done differently next time?	
CCM	62	We are considering training community health workers to treat sick children in villages that are more than an hour's paddle from a health center. What do you think of this idea?	
	63	Who would be good health workers?	
	64	What advice do you have for us?	
	65	Would volunteers be willing to do this?	
	66	Would you be willing to pay for treatment?	
	67	Is there anyone who might NOT like this plan?	
Anything else?	68	Is there anything else that you would like to tell us? About anything at all?	

Thank you very much for sharing your experience. I think we have learned a lot!

SITUATION ANALYSIS

CHW ASSESSMENT

Thank you for sharing some of your valuable time to talk to us today. We are interested in learning about caring for sick children in your community. Is that OK? Do you mind if we take notes?

THEME	#	QUESTION	RESPONSE
Identifying information	1	District/ward	
	2	Village	
	3	Interviewer	
	4	Date	
	5	Name of CHW/community worker	
	6	Age of the CHW	
	7	Educational level (please circle response)	1. Illiterate 2. Literate (no schooling) 3. Completed grade (write) _____
	8	When did you start working as a CHW (month & year)?	
	9	Are you attached to a specific health facility? (name)	
	10	Are you paid any monthly salary/stipend by the program?	
	11	Do you receive any fee/remuneration in cash or kind from the community?	
Catchment area & target population	12	How many households are there in your village/community?	
	13	Are you responsible for a certain number of households?	
	14	What is the total population of these households?	
	15	How many <5 children are there in these families?	

THEME	#	QUESTION	RESPONSE
Catchment area & target population (cont.)	16	How many women 15–45 years of age are there in these families?	
	17	How much time does it take you to reach the farthest household in your service population?	
	18	Is any other CHW working in your community?	
	19	If yes, how do you divide your work? (please circle response)	1. Households 2. Working hours 3. Services
Service provision	20	What are your main functions as a CHW? (please circle response)	a. Register households b. Conduct group health education sessions c. Assess, classify, and refer cases of pneumonia d. Assess, classify, and treat cases of pneumonia with antibiotics e. Identify and treat cases of uncomplicated malaria f. Follow-up patients on treatment to ensure compliance g. Refer sick children to the health facility h. Assess, classify, and treat cases of diarrhea i. Weigh children j. Manage stock of essential medicines k. Organize, with the community, a transfer system for patients referred l. Maintain daily activity register m. Draft a report at the end of each month
	21	Is there a separate designated room/area in your residence for patient consultation?	
	22	Do you have a medicine box?	
	23	How many days a week do you perform your duties as a CHW?	

THEME	#	QUESTION	RESPONSE
Service provision (cont.)	24	What are your daily working hours?	
	25	Do you see patients after _____ p.m. daily and on weekends?	
	26	Do you conduct regular home visits as part of your job?	
	27	Do you charge a fee for medicines provided to the patients?	
Training	28	Did you attend a training before starting work as a CHW? (month and year)	
	29	Where did the training take place? (please circle response)	1. District health facility 2. Basic health facility 3. Community
	30	How many days did the training last?	
	31	How many CHWs participated in the training?	
	32	Was a test conducted before and after the training?	
	33	Did the training include practical sessions (interaction with patients)?	
	34	Do you have a guide/handbook to help you carry out your work?	
	35	Have you attended refresher trainings in the last 12 months?	Topics Number of days
Supervision	36	Who is your supervisor?	1. Health-facility staff (specify) _____ 2. Special project staff (specify) _____ 3. Any other (specify) _____
	37	When was his/her last visit?	

SITUATION ANALYSIS

THEME	#	QUESTION	RESPONSE
Supervision (continued)	38	What did he/she do during her last visit? (please circle response)	a. Checked your registers b. Discussed cases treated/referred by you c. Checked medicine stocks d. Reviewed training materials with you e. Visited house of a sick/recovered child f. Collected monthly report
	39	Did she/he use a checklist?	
	40	Is there a monthly meeting of CHWs at the health facility?	
	41	What happens in these meetings? (please circle response)	a. Review of CHW registers b. Review of cases treated/referred by CHWs c. Medicine resupply d. Continued education sessions e. Submission of monthly reports
	42	Do you visit the health facility on regular basis for reasons related to your work?	
Register review	43	Which of the following data are recorded in the activity register? (circle all)	1. name 2. age 3. first vs. revisit 4. village 5. diagnosis 6. treatment
	44	How many sick children < 5 were seen?	last month _____ last 12 months _____
	45	How many sick children < 5 had pneumonia?	last month _____ last 12 months _____
	46	How many sick children < 5 had malaria?	last month _____ last 12 months _____
	47	How many sick children < 5 had diarrhea?	last month _____ last 12 months _____
	48	Pneumonia treatment ratio (observed/expected)	
	49	Sick child treatment rate, annualized	

THEME	#	QUESTION	RESPONSE
Inventory	50	Which medicine do you use for treating pneumonia?	
	51	Was there any stock-out of pneumonia medicine last month?	
	52	Which medicine do you use for treating childhood malaria?	
	53	Was there any stock-out of the childhood malaria medicine last month?	
	54	Was there any stock-out of ORS last month?	
	55	What do you do if you have a stock-out?	
	56	Do you have patient management protocol?	
	57	Do you have a thermometer?	
	58	Do you have a container to mix ORS?	
	59	Do you have a weighing machine/MUAC strip?	
	60	Do you have a timer?	
	61	Do you have health education materials?	Please list:
Case management		Say, **"Now I'd like to ask you about caring for a sick baby. Suppose a six-month old infant comes with cough and difficult breathing. What would you do?... Anything else?... Anything else?"** (Tick each of the three that is mentioned. Do NOT prompt.)	
	62	*Unprompted:* Check for danger signs?	
	63	*Unprompted:* Check for fast breathing?	
	64	*Unprompted:* Check for chest indrawing?	
	65	Say, **"When you check the breathing rate, do you use a timer with a second hand? Can you show me?"**	

SITUATION ANALYSIS

THEME	#	QUESTION	RESPONSE
Case management (cont.)	66	Say, "This sick baby actually had a respiratory rate of 55, but had NO chest indrawing. How would you classify this case?"	
	67	Say, "The baby, in fact, had pneumonia. How would you treat this case?"	
Other	68	Thank you so much! Is there anything else you would like to tell us? Do you have any questions?	

Thank you very much for sharing your experience. I think we have learned a lot!

WORKSHEET: Illustrative calculations of potential use of CCM for diarrhea, malaria, and pneumonia in district X[76]

OUTPATIENT CHILDHOOD DIAGNOSES AT MOH FACILITIES IN DISTRICT X (2007)

Month	Acute diarrhea			Dysentery			Malaria			Pneumonia		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Jan	220	237	457	52	52	104	1,621	1,767	3,388	114	163	277
Feb	218	255	473	84	48	132	1,210	1,227	2,437	86	95	181
Mar	170	195	365	72	81	153	1,369	1,361	2,730	164	88	252
Apr	195	139	334	63	59	122	1,099	1,130	2,229	54	57	111
May	231	222	453	96	103	199	1,429	1,463	2,892	217	173	390
Jun	255	301	556	111	98	209	1,667	1,685	3,352	132	146	278
Jul	259	277	536	91	108	199	2,281	2,127	4,408	111	153	264
Aug	275	296	571	90	95	185	3,399	3,706	7,105	262	254	516
Sep	276	272	548	71	61	132	2,757	2,709	5,466	288	337	625
Oct	269	261	530	63	63	126	2,714	2,609	5,323	251	210	461
Nov	211	204	415	49	63	112	2,031	1,873	3,904	123	102	225
Dec	180	182	362	35	52	87	1,215	1,193	2,408	74	133	207
Total	2,759	2,841	5,600	877	883	1,760	22,792	22,850	45,642	1,876	1,911	3,787
Actual E/C/Y*			0.11			0.03			0.86			0.07

Month	Acute diarrhea			Dysentery			Malaria			Pneumonia		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Expected E/C/Y**			3						4			0.3
Actual/ expected E/C/Y			4%						22%			24%

*Episodes per child per year based on 53,060 children under five in district X (total population: 265,300)

**Based on MOH estimates (diarrhea, malaria) and upper-end or Rudan projection (pneumonia)[77]

Comment: Low levels of treatment exist for all three diseases for which we have forecasts. The low treatment ratios may be worst-case scenarios because non-MOH statistics are not included, and MOH statistics are probably not complete. Curiously, the ratios for pneumonia and malaria are nearly identical—about one in four cases—which suggests a common cause, such as low access. In fact, these ratios are nearly identical to the experience to date for 2008. Lower care-seeking for diarrhea is not surprising since many cases should be treated at home. Dysentery is common; almost one-third (31% [1,760/5,600]) the level of acute diarrhea. There was no evidence of sex preference in care-seeking at MOH facilities.

PREDICTED ACTIVITY LEVELS AT PROVIDER (= VILLAGE) AND PROGRAM LEVELS AT PROJECTED DISEASE INCIDENCE

Disease	Episodes/child/year	Cases per year		Cases per month	
		Per CCM worker (200 children in 1 village)	Per program (33,000 children in district)	Per CCM worker (200 children in 1 village)	Per program (33,000 children in district)
Diarrhea	3	600	99,000	50	8,250
Malaria	4	800	132,000	67	11,000
Pneumonia	0.3	60	9,900	5	825
Total	**7.3**	**1,460**	**240,900**	**122**	**20,075**

SITUATION ANALYSIS

PREDICTED ACTIVITY LEVELS AT PROVIDER (= VILLAGE) AND PROGRAM LEVELS AT CURRENT MOH OUTPATIENT DEPARTMENT USE RATES

Disease	Episodes/child/year	Cases per year		Cases per month	
		Per CCM worker (200 children in 1 village)	Per program (33,000 children in district)	Per CCM worker (200 children in 1 village)	Per program (33,000 children in district)
Diarrhea	0.11	22	3,630	2	303
Malaria	0.86	172	28,380	14	2,365
Pneumonia	0.07	14	2,310	1	193
Total	**1.04**	**208**	**34,320**	**17**	**2,860**

PREDICTED ACTIVITY LEVELS AT PROVIDER (= VILLAGE) AND PROGRAM LEVELS AT REALISTIC USE RATES

Disease	Episodes/child/year	Cases per year		Cases per month	
		Per CCM worker (200 children in 1 village)	Per program (33,000 children in district)	Per CCM worker (200 children in 1 village)	Per program (33,000 children in district)
Diarrhea	0.3	60	9,900	5	825
Malaria	2	400	66,000	33	5,500
Pneumonia	0.2	40	6,600	3	550
Total	**2.5**	**500**	**82,500**	**42**	**6,875**

PREDICTED ACTIVITY LEVELS AT PROVIDER (= VILLAGE) AND PROGRAM LEVELS AT DIFFERENT USE RATES

Disease	Scenario	Episodes/ child/year	Cases per year		Cases per month	
			Per CCM worker (200 children in 1 village)	Per program (33,000 children in district)	Per CCM worker (200 children in 1 village)	Per program (33,000 children in district)
Diarrhea	MOH and literature projections	3	600	99,000	50	8,250
Malaria		4	800	132,000	67	11,000
Pneumonia		0.3	60	9,900	5	825
Total		**7.3**	**1,460**	**240,900**	**122**	**20,075**
Diarrhea	Current MOH outpatient department use	0.11	22	3,630	2	303
Malaria		0.86	172	28,380	14	2,365
Pneumonia		0.07	14	2,310	1	193
Total		**1.04**	**208**	**34,320**	**17**	**2,860**
Diarrhea	Realistic	0.3	60	9,900	5	825
Malaria		2	400	66,000	33	5,500
Pneumonia		0.2	40	6,600	3	550
Total		**2.5**	**500**	**82,500**	**42**	**6,875**

SITUATION ANALYSIS

WORKSHEET: Illustrative input needs for information type by situation-analysis type

The purpose of this tool is to propose illustrative data needs for each of the eight boxes of the results framework for the three types of situation analyses. Data include quantitative measures and qualitative or descriptive information that help to describe the epidemiologic, program, and policy factors relevant for the CCM situational analysis. Many of the bullets suggesting more detailed data for intermediate or comprehensive analyses are repeated multiple times, so the table looks more complicated than it really is. Local situations, questions, and especially levels of resources will ultimately focus data needs.

INFORMATION TYPE	KEY INDICATORS	BASIC	SITUATION-ANALYSIS TYPE	
			INTERMEDIATE	COMPREHENSIVE
Goal: status	Under 5 mortality rate Infant mortality rate	• National rates • Facility-based counts by age at death • Facility-based counts by cause of death, especially contribution of diarrhea, pneumonia, and malaria • Any population-based counts or rates from area in question • Seasonal patterns and trends	Basic, plus: • Any population-based counts or rates potentially generalizable to area in question • Assessment of input quality, missing data • Subgroup analysis, if feasible • Relevant research on cause-structure of death • Relevant specific input re: research question(s)	Intermediate, plus: • Detailed subgroup analyses by person (ethnicity, SES), place (region, urban/rural)

INFORMATION TYPE	KEY INDICATORS	SITUATION-ANALYSIS TYPE		
		BASIC	INTERMEDIATE	COMPREHENSIVE
SO: use	Care-seeking for "ARI needing assessment" in last 14 days Care-seeking for "fever" in last 14 days	• National rates • Any relevant local survey data or qualitative research • Case definitions (classification, diagnosis, complaint, etc.) • Services-based counts (facilities and others) • Services-based care-seeking (counts/expected as %) • Seasonal patterns and trends • Other general "use" indicators: measles, ANC	Basic, plus: • Receipt of antibiotic for presumed pneumonia • Any population-based counts or rates potentially generalizable to area in question, with case definitions • Assessment of input quality, missing data • Subgroup analysis, if feasible • Relevant specific input re: research question(s)	Intermediate, plus: • Detailed subgroup analyses by person (ethnicity, SES), place (region, urban/rural)
	ORT use for diarrhea in last 14 days	• National rates • Any relevant local survey data or qualitative research • Services-based output (ORS packet) counts (facilities and others) • Facility-based counts by syndrome, diagnosis, or complaint • Seasonal patterns and trends	Basic, plus: • Receipt of zinc for diarrhea • Any population-based counts or rates potentially generalizable to area in question • Assessment of input quality, missing data • Subgroup analysis, if feasible • Relevant specific input re: research question(s)	Intermediate, plus: • Detailed subgroup analyses by person (ethnicity, SES), place (region, urban/rural)

INFORMATION TYPE	KEY INDICATORS	SITUATION-ANALYSIS TYPE		
		BASIC	INTERMEDIATE	COMPREHENSIVE
IR1: enabling environment	• Existence of CCM policy, plan, and/or budget • Existence of CCM test project • Existence of community strategies relevant to CCM (revolving medicine fund, etc.)	• Prioritized causes of < 5 death • Health system structure: private sector, informal sector, traditional healers, CHWs • CHW by interventions • Approach to severely ill? • Referral? Use of antibiotics? • Community • Structures and mobilization • Relevant cultural beliefs • Traditional providers • Financial and gender issues • Policy • Relevant national policies (zinc, low osmolarity ORS, etc.) and local adaptations • State of implementation	Basic, plus • Specific opportunity for test • Community • Details of specific strategies or approaches to test • Policy • Details of specific policy to inform • Details of specific policy question to answer	Intermediate, plus: • Training, especially for volunteers--skills, curricula, strengths/weaknesses • Medicines--syndrome-specific; availability, cost, cost recovery, supply chain; community possibilities • Newborn sepsis--priority, response • Injections: policy vs. practice • Political motivation and support; professional associations; champions • Opinions of CCM--roles for private sector, traditional healers, CHWs
Enabling environment strategies and programs		• Planned strategies (community mobilization, actors, sectors, etc.) • Implementation and reasons for variance • Role of local initiative in informing policy	Basic, plus: • Specific opportunity for test • Research—ongoing; additional operational questions	Intermediate, plus: • Partnerships for CCM interventions • Interest groups: controversies, champions, opponents, etc.

SITUATION ANALYSIS

INFORMATION TYPE	KEY INDICATORS	SITUATION-ANALYSIS TYPE		
		BASIC	INTERMEDIATE	COMPREHENSIVE
IR2: access	Delivery by skilled birth attendant or postpartum visit (as proxy for access to treatment for newborn sepsis)	• National rates • Any relevant local survey data or qualitative research • Services-based counts • Seasonal patterns and trends	Basic, plus: • Any population-based counts or rates potentially generalizable to area in question • Assessment of input quality, missing data • Subgroup analysis, if feasible • Relevant specific input re: research question(s)	Intermediate, plus: • Detailed subgroup analyses of SCM access or density of provider by person (ethnicity, SES), place (region, urban/rural)
	Population within 5 km of standard case management (or locally adapted definition)	• Map with estimated #/% or actual population (if known) within 5 km (or as locally defined) of SCM facility or provider (public and private) • Temporal, economic, and cultural barriers to SCM availability • Medicine availability: formulary medicines, stock-outs	Basic, plus: • Assessment of input quality, missing data • Subgroup analysis, if feasible • Relevant specific input re: research question(s) • GIS precision, perhaps	Intermediate, plus: • Detailed subgroup analyses by person (ethnicity, SES), place (region, urban/rural)
Access strategies and programs		• Planned strategies (facility construction, renovation, staffing, scheduling, outreach, alarm & transport, radios, etc.) • Implementation and reasons for variance	Basic, plus: • Document review • Relevant specific input re: research question(s)	Intermediate, plus: • Past experience with CCM or its elements • Past or current experience to increase access to deliver other interventions

INFORMATION TYPE	KEY INDICATORS	SITUATION-ANALYSIS TYPE		
		BASIC	INTERMEDIATE	COMPREHENSIVE
IR3: quality	Case management according to protocol (many indicators)	• Role of facility-based and community-based providers • Capacity of facility-based and community-based providers (actual and perceived)	Basic, plus: • Assessment of input quality, missing data • Subgroup analysis, if feasible • Consider primary data gathering • Relevant specific input re: research question(s)	Intermediate, plus: • Detailed subgroup analyses by person (ethnicity, SES), place (region, urban/rural)
Quality strategies and programs		• Planned strategies (training, retraining, supervision, job aids, etc.) • Implementation and reasons for variance	Basic, plus: • Relevant specific input re: research question(s)	Intermediate, plus: • Curriculum review (technical quality) • Training review (competency-based) • Supervision review (plan, actual, resources)
IR4: demand	Knowledge of danger signs for children and newborns	• Knowledge and labeling of danger signs • Practice of home care • Adherence to treatment and referral • Traditional practices (good, bad, neutral) • Opinion of various providers	Basic, plus: • Any population-based counts or rates potentially generalizable to area in question • Assessment of input quality, missing data • Subgroup analysis, if feasible • Relevant specific input re: research questions	Intermediate, plus: • Detailed subgroup analyses by person (ethnicity, SES), place (region, urban/rural)

INFORMATION TYPE	KEY INDICATORS	SITUATION-ANALYSIS TYPE		
		BASIC	INTERMEDIATE	COMPREHENSIVE
Demand strategies and programs		• Planned strategies (formative research, BCC strategy development, message selection, delivery channels, etc.) • Implementation and reasons for variance	Basic, plus: • Review BCC materials (quality or technical information, communication, use, etc.) • Relevant specific input re: research questions	Intermediate, plus: • BCC Strategy document review • National plan, actual, resources
External		• Political • Socioeconomic and cultural • Ecologic and environmental • Infrastructural	Basic, plus: • Unique opportunities to test, given externals	Intermediate, plus: • Macro-level effects • Likely effect on subgroups by person (ethnicity, SES), place (region, urban/rural)

Marginal budgeting for bottlenecks (MBB)[16, 81]

MBB is a results-based planning and budgeting tool that utilizes knowledge about the impact of interventions on child and maternal mortality in a country, identifies implementation constraints, and estimates the marginal costs of overcoming these constraints. The tool was jointly developed by UNICEF, the World Bank, and WHO. It used to assist in setting targets for proven high-impact interventions, and the estimation of their expected impact, cost per life saved, and additional funding requirements, as well as a projection of how to overcome barriers to health care without prejudice to the sustainability of a government's financial position. MBB consists of five steps.

1. An assessment of the key indicators, trends in and cause of maternal, newborn, and child mortality and morbidity and access to essential services, and the selection and packaging of evidence-based, high-impact interventions.
2. Identification of system-wide supply and demand bottlenecks to adequate and effective coverage of essential primary health-care services.
3. Estimation of the expected impact on survival rates for each of the interventions.
4. Selection of the types, quantities, and costs of additional inputs, which are needed to implement the actions to overcome bottlenecks and to lift the effective coverage of intervention packages.
5. Analysis of budgetary implications, the identification of likely sources of funding and the comparison of the marginal costs and additional funding needs.
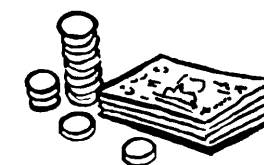
Section III:

Enabling a Supportive Social and Policy Environment

Overview and definitions

An enabled environment results from an interaction of factors at the national, district, facility, and community levels. An enabling environment produces sound policy, promotes efficient and effective use of resources, and nurtures community participation in CCM.[82] Such an environment fosters sustainable CCM, wherein the demand for services is consistent with the "supply" (access/availability and quality)—and both are high. Although factors at the national, district, and community levels intersect to generate an enabling environment, for purposes of planning and management, this section considers them separately.

National environment. Ministries of health have the responsibility to ensure that national health policies are enacted and health priorities are achieved. Ministries are charged with developing and overseeing the standards, norms, and regulations for program implementation, and they often determine how budgeted funds are allocated among different priorities. This is also the level at which CCM becomes institutionalized—fully incorporated into national priorities, policy, and programs, with corresponding capacities to sustain it. In addition, global health programs, such as the Global Fund to Fight AIDS, Malaria, and Tuberculosis, can influence national program directions, as can the priorities of major donor organizations operating in a country. All these factors affect the interest and readiness of a country to initiate, institutionalize, or expand CCM.

Decentralization also affects the environment for CCM. In some countries, important responsibilities in the health system are now effectively in the hands of regional, provincial, and district governments and authorities. These responsibilities include hiring and firing health workers, paying salaries, and procuring commodities. In others, decentralization may be in early stages, and decision-making authority still lies with the central-level government.

District environment. Although the community is at the core of CCM, the district plays an important role in managing and supporting CCM, regardless of the level of formal decentralization in terms of authority and funding decisions. Health and other civil society authorities (e.g., the district council) are important stakeholders. Without their commitment and support, it is impossible to implement all activities needed for CCM. Moreover, even in less-decentralized environments, districts may have a considerable role in procuring medicines and supplies.

Community environment. As a community-based approach, CCM will take on unique features in each community, according to community characteristics and dynamics. "Community" typically refers to a group of people residing in the same geographical area (e.g., a village) or a group with common interests (e.g., members of the same ethnic group) in the program catchment area. Usually populations residing in rural areas tend to have similar livelihoods, schedules, interests, health beliefs and practices, and education levels. However, urban populations, areas with an urban/rural mix, or communities in rapid transition may not have common interests, practices, or literacy levels, which makes for a more complex environment and may complicate stakeholder participation and use of CCM.

Indicators of an enabled social and policy environment. Although the definition of standardized core indicators for CCM is still in process, Table 5 provides examples of indicators that have been used in various countries.

TABLE 5: SAMPLE INDICATORS OF AN ENABLED SOCIAL AND POLICY ENVIRONMENT

INDICATOR	DEFINITION	SOURCE OF DATA	FREQUENCY OF COLLECTION	POINT PERSON	COMMENTS
Policy[83]	Relevant CCM policies/standards in place (CHW's ability to treat pneumonia, to dispense zinc, etc.)	Memorandum of understanding (MOU)	Once a year	Manager	Use at national level

INDICATOR	DEFINITION	SOURCE OF DATA	FREQUENCY OF COLLECTION	POINT PERSON	COMMENTS
MOH resources[80]	% CCM program costs taken on by MOH	MOUs	Once a year	Manager	National & district levels
MOH supervision, planned[80]	# CCM supervision visits planned	MOH plan	Quarterly	Manager	District level—also an indicator of quality
MOH supervision rate[80]	# (%) CCM supervision visits planned that actually occurred	MOH plan	Quarterly	Manager	District level—also an indicator of quality
Organizational capacity	Ability of implementing organizations to carry out stated objectives			Manager	District level—may use indicators of access, quality, and demand
Community capacity	% communities in catchment area with a community management committee or similar structure	Observation	Twice a year	Manager or supervisor	Community level
Community capacity	% community management structures with CCM action plans	Minutes from meetings	Twice a year	Manager, supervisor, or CHW	Community level

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Strategies, interventions, and activities to promote an enabled social and policy environment

Review the findings of the situation analysis. The situation analysis gives an overview of opportunities and obstacles in the environment and suggests strategies to address critical issues affecting sustainability: institutionalization and "ownership" of CCM, advocacy, capacity building, financial viability, and community competency.

Advocacy at national and district levels. Advocacy is an ongoing process to engage a wide range of stakeholders in influencing decisions about policies and standards regarding CCM, allocation of funding for CCM, and other strategies to foster program sustainability.

Capacity building at district and community levels. Both implementing and partner institutions must be able to carry out the activities and strategies to achieve the intermediate results. Although organizational capacities are needed at all levels of the health system, particularly as an initiative moves to scale, CCM typically focuses on capacity building at the district and community levels to promote institutionalization and sustainability.

Successful CCM also requires strong partnerships between communities and the health system. While caregivers and households must be able to use CCM effectively and efficiently, communities also need "collective competencies" to deliver and manage CCM—usually through a community management structure such as a village health committee.

Planning for financial viability. Planners and managers need to consider how a program can be sustained financially by aiming to balance program expenses and income. This may be achieved through increasing efficiency and by seeking funding from a variety of sources.

Begin to create the environment for policy change and programmatic institutionalization through advocacy

Health policy is an important element shaping the context in which CCM operates. In some countries, policy or standards are not supportive of CCM. For example they may state that only professionally trained health workers can prescribe antibiotics. In others, the policy context is "silent," neither expressly forbidding nor authorizing CHWs to dispense antimicrobials. Nevertheless, without organizational capacities to carry out CCM, even supportive policies are difficult to implement.

While small-scale implementation of CCM may be possible without supportive policies and institutional capacities, without them expansion of program initiatives and their long-term sustainability are difficult, if not impossible.

Advocacy may be a new focus for many program managers. However, a manager's thoughts about the value of CCM or evidence supporting its effectiveness may not be sufficient to convince skeptics that CCM is feasible and effective. A thorough situation analysis can help to argue for CCM, or respond to concerns about it, in the specific context.

Purposes of advocacy. Advocacy seeks to influence decision-making, encouraging its audience to do one or more of the following.
- Establish national policies, norms, standards, and/or materials (with logos) that support CCM.
- Increase allocation of national and lower-level financial resources for CCM.
- Develop organizational capacities to support CCM at all levels.
- Foster greater community-level engagement in CCM.

The advocacy process. In the context of starting or expanding CCM, advocacy is an ongoing process. It often consumes time and energy. Advocacy usually involves the following steps.
- Review the situation analysis data to determine the issues affecting CCM and the decision-making process.
- Define the desired outcomes of advocacy.
- Identify influential stakeholders and their concerns about CCM.
- Determine the arguments or messages that are most persuasive for stakeholders.
- Choose the means to best convey the arguments.
- Mobilize "champions" for CCM.
- Work with established structures, where possible, to guide and oversee both advocacy and implementation.
- Monitor the advocacy process.

Consider the different concerns of different stakeholder groups regarding CCM. There can be many stakeholders in CCM, about which each group may have different questions.

Decision-makers in ministries of health ask about the practicality of implementing CCM.
- Is it feasible?
- Does it work?
- Is it safe?
- How does it fit within existing programs and priorities?
- What does it cost? Is it a good investment compared to investments to improve the quality of care in health facilities?

Pediatricians, other physicians, nurses, midwives, and their professional associations seek assurance that CCM by CHWs is safe and comparable in quality to care from trained medical practitioners. They may ask:

- Does CCM contribute to antimicrobial resistance?

Program managers at the district level may ask how CCM affects workloads.
- Does CCM increase or decrease facility workloads? What effect does it have on the caseload mix?

Representatives of NGOs and community leaders may contrast CCM with their traditional emphasis on primary prevention, e.g., provision of clean water, latrine construction and safe disposal of feces, promotion of hand washing, control of mosquito larval habitats, etc. They may ask:
- Will the gains made in the prevention of illness be lost if a focus on treatment and medicines is added to a program?

> **TIP**
>
> **Bear in mind that stakeholders change over time**
> Frequent personnel changes in ministries of health are common, at central and peripheral levels. These new stakeholders should be brought into the process as soon as possible.

Use a variety of channels. Successful advocacy addresses stakeholders' concerns through a variety of channels or forums, which may include
- management meetings at different levels of the health system;
- scientific assemblies, such as those of national health professional associations;
- copies of the literature summarizing the evidence for CCM (for a list, see the toolkit at the end of this section);
- workshops with high-level decision-makers to review data;
- visits to successful CCM sites—either in-country or in a neighboring country;
- country-exchange meetings;
- policy and program briefs; and
- ongoing, persistent personal contacts and networking.

> **Box 12: Messages for advocating for CCM**
>
> Drawing on the evidence presented in Section I, reinforced by documents and/or briefing papers, the following messages can be tailored to the specific concern(s) and audiences in a given setting.
>
> - A large number of children die from pneumonia, diarrhea, malaria, and other conditions that can be effectively treated through CCM.
> - The formal facility-based health system in most developing countries achieves only about 40% coverage.
> - Many children live more than five kilometers from a first-level health facility. They may be brought late to a health facility for care or not at all.
> - C-IMCI without CCM is often unsuccessful in getting sick children to treatment.
> - Many children either do not get treatment for common treatable diseases, or they get treatment of unknown quality.
> - CHWs may be the most effective agents for community-level impact. They can be well trained to treat simple cases of childhood illness and refer severe cases. As members of their communities, they are trusted, ever-present providers of information, education, and communication for caretakers.
> - CHWs can provide quality treatment. When sick children get treatment in the community, and it is of good quality, mortality will decline.
> - CCM is a strategy that can contribute to achieving MDGs 4 and 5 by extending services to areas that would otherwise not have access to them.
> - Many countries have successfully implemented CCM, resulting in increased use of lifesaving interventions and declines in mortality, in the areas where CCM took place.

Identify and mobilize champions at the central level. Champions might also be called leaders. A champion is a person who is convinced of the value of an innovation such as CCM and is enthusiastic about it. He or she is willing to expend some effort and take some risk to make the innovation work. Champions may be found in the MOH, an international technical agency, a national university, or health research agency. They may even be outside the health system or health sector. In all cases, they should have some power to influence decision-makers and other stakeholders, because of either their formal position or the respect they command.

> **TIP**
>
> **Identify champions whose child had one of the illnesses that CCM addresses**
> Advocacy can appeal the heart as well as the mind. Policy makers, clinicians, or other stakeholders whose children had malaria or pneumonia, for example, can deliver compelling, real-life messages.

Champions can be "found" among stakeholders, and they may also be "created" through exposure to the literature, experiences in other countries, or, even more likely, a program or project in their own country.

Seeking and mobilizing a central-level champion (or champions) greatly facilitates an enabling environment to support the initiation and sustainability of CCM. Such people should be included in program planning as early as possible. A champion is a persuasive and credible spokesperson for CCM, convincing skeptical decision-makers and other stakeholders of the value of moving forward. Champions do not need to be a formal part of a program, but their input in program design, management, and dissemination of results can be invaluable.

Box 13: Advocacy to launch CCM in the Democratic Republic of Congo

Advocacy efforts began by preparing the ground for a meeting with influential MOH officials. First, a series of individual meetings with people representing agencies that have some influence with the MOH (e.g., UNICEF, WHO, bilateral agencies, and others) sought to obtain their support for CCM. Next, a presentation during a regularly-scheduled official MOH meeting on IMCI was prepared. At the meeting, participants received copies of the UNICEF/WHO Joint Declarations on Diarrhea and Pneumonia as background documents, reviewed data on the proportion of children living more than five kilometers from a first-level facility, and asked many questions.

Such meetings continued for some time but did not reach a consensus on the appropriateness of CCM. The advocacy process engaged a wider range of stakeholders. Advocates consulted with SANRU, a well-respected NGO with the support of a range of churches. To persuade SANRU, they presented the data showing the proportion of children living more than five kilometers from first-level facilities, and asked to what treatment these children have access. This convinced SANRU leaders, and subsequently SANRU helped build support for CCM within the MOH.

Other elements in the success of the advocacy process were the evidence presented from the Senegal experience with CCM and the efforts of a well-respected professor to champion CCM in the medical community.

Make the most of IMCI as an enabling environment. Facility-based IMCI, and particularly C-IMCI, can be facilitating mechanisms for CCM. Most countries have a national IMCI task force or equivalent structure to guide child health programming. Not only do such entities represent important stakeholders, they are also excellent starting points for building and sustaining a supportive environment. Members of such groups may readily recognize the weakness of C-IMCI in getting sick children to treatment and use that as an argument for CCM. Moreover, their existing roles in providing technical oversight, ensuring compliance with national guidelines, validating new products, and so on can be extended to CCM.

Box 14: Comprehensive multi-sectoral IMCI policy in Malawi includes CCM[84]

Scaling up of high impact interventions in the context of Essential Health Package
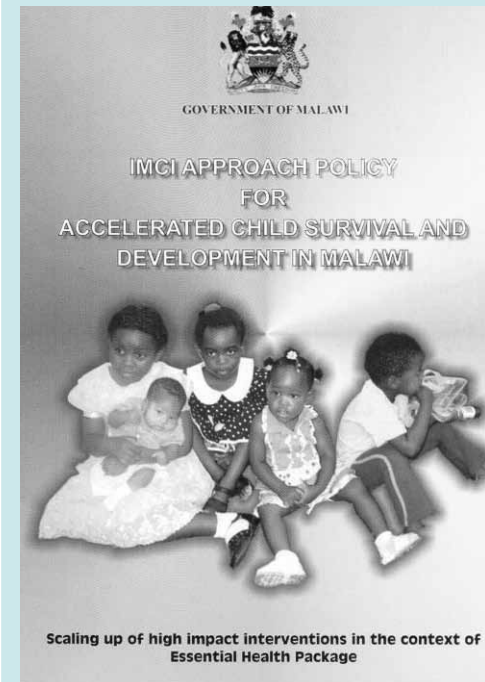
The government of Malawi adopted IMCI as a strategy in 1998, but there was no policy to guide implementation.[84] By the end of 2005, about half of the districts had all three components of IMCI in place. To contribute to attaining MDG 4 and advance achievements in child survival, the Ministry of Health, in collaboration with the Ministry of Women and Child Development, coordinated the development of an IMCI policy to guide and standardize the implementation of IMCI. The policy explicitly addresses CCM in its objectives, stated as results: "All children suffering from common illnesses managed holistically at out-patient and in-patient facilities and **at home**." (Emphasis added.)

It also provides operational definitions for the implementation of interventions, stating: "Trained Health Surveillance Assistants [HSAs, a cadre of community-based providers] shall provide treatment for uncomplicated illnesses at home within their recognized mandate." HSAs are authorized to provide low-osmolarity ORS for dehydration, antimalarials, and albendazole for deworming. The policy encourages treatment of sepsis, pneumonia, and dysentery with antibiotics "preferably at the village clinics."

Remember that policy change can be an objective. Policy change is not a requisite first step in program planning. In fact, aiming to change a policy prior to starting a small-scale program is likely to significantly delay implementation because the process can be both difficult and time consuming. Ministries of health generally demand strong evidence—particularly from their own countries—to inform new policy directions.

Design and implement a pilot, demonstration, or operations research project to generate national evidence. Most countries that have implemented CCM began with approval to a small-scale start-up phase in a confined area. Targeted evaluation methods included in the implementation plan aimed to address specific questions and concerns about community-based treatment, such as issues

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around quality of care, medicine sales, and management by CHWs. Pilot projects or operations research can be advocacy tools. Reframing skeptics' reservations as research questions constructively addresses a barrier to sustainability.

> **BOX 15: TIPS FOR DESIGNING PILOT, DEMONSTRATION, OR OPERATIONS RESEARCH PROJECTS FOR SUSTAINABILITY AND SCALING UP[85]**
>
> - Involve respected representatives of stakeholder groups in the design and review of the results.
> - Ensure that data generated answers decision-makers' questions and meets their standards for credibility.
> - Avoid designing a "boutique" project that is too costly to be replicated in other districts.[86]
> - Start slowly and in low-access areas where early success is possible (i.e., where access is not too low and some characteristics of an enabling environment for CCM are present).
> - Incorporate the development and testing of strategies and tools to build capacities at all levels.
> - Include scaling up CCM as an objective and involve those who will ultimately be responsible for scaling up in planning and implementing the start-up phase.

Consider contributing to expanding the body of knowledge about CCM. Many questions about CCM remain unanswered. By partnering with a national or international university or research institution, an operations research project can generate new knowledge to advance the state of the art. Some priority research and/or evaluation questions, which may be of relevance in a country, are listed below.[87] A more comprehensive list is found in the toolkit at the end of this section.

- Are CHWs able to assess, classify, and treat various illnesses under integrated CCM?
- What is the impact of CCM on antimicrobial resistance?
- What is the impact of pre-referral medicines on clinical outcomes of children with severe disease?
- What is the cost and cost-effectiveness of CCM and which are appropriate methods for cost recovery and financing?
- What are health-system effects of CCM (caseload mix, number of patients, etc.)?

Continue the dialogue: share national evidence of effectiveness and quality with decision-makers during and after the pilot project. A more formal, policy-driven meeting with MOH officials and other stakeholders usually follows the conclusion of a pilot project. (The toolkit contains an example of a policy brief prepared for the MOH in Ethiopia, advocating for CCM of childhood pneumonia, based on the findings of a pilot project.) However, advocacy does not end at this stage. In fact, it typically expands, as do the numbers and locations of stakeholders, if the small-scale project was successful and the decision is made to expand CCM.

Obtain support at the district level

Gaining support from local authorities (whether or not they are the final decision-makers) is essential. District or other subnational-level officials can become advocates for CCM at higher levels. District-level stakeholders' commitment to CCM also has significant influence on community mobilization.

Understanding the interface between the health system and relevant local government structures is critical. This is particularly relevant in decentralized environments because local authorities are policy makers for the health system—determining priorities and allocating funds.

District or municipal authorities, elected leaders, health workers, and community groups are the audiences for advocacy efforts at this level. Joint meetings with district health teams, representatives of administrative and legislative bodies as well as women's and youth groups can be effective advocacy tools. They can also motivate the people who will be involved—CHWs, health-facility staff, and community members.

Identify and support champions at the district level. Champions at the district and subdistrict levels may be able to carry messages favorable to CCM more effectively than individuals from outside programs or organizations. For example, after leading a successful CCM start-up phase in the Thiadiaye district of Senegal, the district health team visited other districts and regions to share results—and urge them to consider developing a CCM approach for their districts.

When first starting CCM, district-level champions may need coaching in how to best describe CCM and the science behind it. They also need to be confident that championing this new strategy will not hurt them professionally.

Look for opportunities for start-up in effectively decentralized health systems. Where national-level decision-makers are reluctant to move forward, authorities in one or more districts or regions in decentralized systems may be enthusiastic and willing to break new ground. These situations offer the chance for bottom-to-top strategies to obtaining national evidence and subsequently moving on to program expansion (Box 16).

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BOX 16: STARTING WHERE SUPPORT IS IN PLACE[88]

In **Nicaragua** the central MOH was reluctant to permit CHWs to distribute antibiotics. At the same time, the regional office of the MOH in the department of León had experience with treating malaria and leishmaniasis through volunteers, and an existing community-based system of health and nutrition promotion seemed to be an ideal platform for CCM. The demand for and confidence in the feasibility of the strategy was greatest in the areas farthest from the departmental capital. The regional MOH, which has decision-making authority in health programming, was willing to test CCM. After much dialogue and consultation through a national task force, the central MOH granted approval for a pilot project in 35 communities in León.

Change and acceptance within the central MOH began at the periphery. A participatory process that engaged stakeholders in León led to greater acceptance at the national level. Department and municipal authorities expressed great pride in the success of the pilot. Central authorities were assured that CCM could be designed and tailored to the specific context, rather than applied as a "prepackaged" strategy. Within nine months, the central MOH added CCM as a component of the national community-based health promotion strategy, making CCM official policy for remote "Category C" (population less than 15,000) communities. This approach was later incorporated into the national poverty reduction strategy and the national development plan.

Engage health-facility staff to obtain their commitment to CCM. Staff at health facilities may show a variety of reactions to CCM. They might look to it as an opportunity, recognizing that it can increase access to treatment. They may also appreciate that community treatment can result in fewer routine cases at the facility, leaving more time for them to focus on difficult cases. Alternatively, clinic workers may feel that CHWs will supplant them, or somehow devalue their skills and training. They may fear that the required supervision and reporting will add to their heavy workloads. Where user fees are in place, facility-based providers may see CHWs as a source of competition for income.

To increase support for CCM among facility-based staff, the following actions are useful.
- Communicate early about the proposed program, giving clinic staff more time to understand it, voice their concerns, and perhaps even to feed it into the design.
- Establish clinic workers as leaders and managers in the program, responsible for overseeing and managing a cadre of CHWs with new tasks and skills. While this can add to facility-based providers' workload, it can also increase their prestige.
- Minimize the increase in workload that such responsibility entails by providing additional resources, most notably by sponsoring an extra staff member who will carry out supervision, where feasible.
- Give the clinic workers regular feedback about the achievements of the program, making sure that they receive proper credit when the CHWs they manage perform well. Feedback can include data that ease concerns

they might have. For example, evidence that the use of the clinic has not declined or that the quality of the CHWs' services is high.
- Refresh facility-based workers' skills in IMCI, so that they can confidently provide case management, handle referrals, and coach CHWs.

BOX 17: FACILITY-BASED PROVIDER SPEAKS OF THE BENEFITS IN CCM[89]

Just months after CHWs received training in CCM, the program manager spoke to a provider in the first-line facility of the catchment area and reported the provider's comments. "The nurse in charge of the health center expressed satisfaction with the CHWs' work since their training to treat children for fever, diarrhea, and pneumonia. He told me his workload has drastically reduced, and he is happy to see fewer children and especially those referred by community-based providers from within the catchment area, which means he can treat more serious cases."

Build or reinforce attitudes and skills for constructive community interaction at the district and facility levels. Facility-based personnel may require reorientation and training in attitudes and skills for interacting with communities, particularly CHW supervisors and others who work directly with community members. Section V, "Increasing the Quality of CCM," and Section VI, "Increasing Demand," describe in more detail the training content and methodologies for facility-based workers.

Ensure that CHWs enjoy full support of district and facility management. Critical to demonstrating support for CHWs is the development and maintenance of a motivation plan, which is discussed in Section IV, "Increasing Access."

Develop organizational capacities

CCM is a new strategy, and partners at the district and higher levels may have limited capacities to implement and sustain it. For CCM, the areas that often need improvement are
- logistics and medicine supply,
- health management information systems and use of data for decision-making,
- financial management,
- human resource management,
- supervision, and
- evaluation.

Managers should approach capacity building as systematically as they approach technical interventions. Often capacity building focuses exclusively on training. Although training is critically important, it may not be sufficient to improve organizational performance. For instance, if supportive supervisory skills are desired, modeling the behavior, cosupervision, and other forms of on-the-job training may be more effective than a formal training course. Rather than skipping straight to the answer of "training," effective capacity building starts with team building,

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moves to problem identification, and then selects strategies and activities to improve performance, with the participation of multiple stakeholders.

Steps in a capacity building process. Capacity building is not a linear process, and some steps may overlap. For example, the situation analysis should identify weaknesses in institutional capacities and planning should include strategies to address them.

1. Develop or strengthen partnership with local partner(s).
2. Perform initial assessment of organizational capacity.
3. Formulate capacity building strategies linked to program goals and mutually identified capacity areas of concern from the assessment.
4. Design a plan to monitor and evaluate progress.[90]

Some indicators of capacity for monitoring and evaluation purposes may be inferred from the indicators of program results. For example, the availability of CCM medicines at the supply point (an indicator of access to CCM) is also an indicator of organizational capacity in logistics and supply management.

Capacity building is a dynamic process, and gains in capacity are rarely constant. For example, setbacks may occur due to changes in personnel. By focusing capacity building on tools and processes, rather than on one or two individuals, the risk of setbacks can be reduced. Programs planning to expand require such tools and processes in order to build capacities on a much larger scale. The toolkit contains several resources on capacity building.

Create partnerships with communities to increase access, quality, demand, and the likelihood of sustainability

Successful CCM requires strong linkages between communities and the health system.

General guidance for working with communities

Approach communities with knowledge and respect. CCM can only succeed if communities are invested in it—if communities have "ownership" of CCM. Before they become invested, they may ask questions such as: Are you here to help solve our problems, or only because you have a donor to please and a program to implement? Are you pursuing our objectives or only yours? Will you listen to what we have to say? Communities get answers to these questions through the manner in which program representatives approach them. Although there are no standard formulas for success, and effective community approaches may be very different from country to country, the suggestions below may help.

Be aware of the signals sent when approaching communities. Program representatives can send many kinds of signals, which say a great deal about how they plan to work. Signals include the mode of transport, dress, time spent listening to community members speak, and even the gender distribution of the team (Figure 5). For example, one team may come into a village in an expensive car or four-wheel-drive

vehicle, quickly explain the objectives of the program and what is needed from the communities, and then give just a few minutes to community members, saying they must move on to the next village and that the heat is unbearable. In contrast, a two-person team may come on a motorcycle, greet the chief, and discuss concerns about the delayed rainy season before discussing the CCM. Both teams may speak the same words, but they are saying different things and are likely to get different responses.

FIGURE 5: TWO TEAMS APPROACHING COMMUNITIES: WHAT DIFFERENT SIGNALS ARE THEY SENDING?

Source: *International Rescue Committee*

Giving the right signals may take more time, although the difference between rushing and listening can be surprisingly small in actual minutes. Like a physician taking the time to listen to a patient's symptoms, this investment will be repaid in increased credibility and effectiveness later.

Use knowledgeable, trusted intermediaries. In many cases, it is useful to work with an intermediary, a person who is close to and trusted by the community, but who also has a good understanding of CCM and other external factors. The intermediary can introduce program or district staff, as is appropriate in many cultures, and can anticipate difficulties in decision-making. For example, a district medical officer may identify a health center manager widely respected for her conduct and sensitivity to local needs to take the lead in approaching communities.

Be aware of who makes the decisions. Communities are complex and vary, even within the same close area. In some places, decision-making may be democratic with all members of the village, men and women, young and old, having a voice. In others, decision-making may be concentrated in the hands of a few, or there may be some form of gender inequality. Even then, there may be variability: the decision-makers may be respected and their decisions accepted even if they are not democratic, or decisions may be bitterly resented by one group that feels systematically excluded. It may be important to be especially careful in villages or countries with a history of social tension or gender bias. No matter what the culture, decisions such as who will be distributing medicines will be made more easily and are less likely to be flawed if more people participate in the decision.[91]

Take into account what exists or is familiar. The situation analysis should provide an understanding of the local and national roles and opportunities for communities to participate in the health system. Many communities have existing health committees or other structures, particularly those with ongoing C-IMCI programs.

Facilitate community decision-making to the extent possible. While MOH policy or donor stipulations may establish some parameters of CCM in advance (e.g., the illnesses and age groups that are the focus of CCM), communities can have a voice about provider profiles, how medicines will be stored, and who will provide oversight.

Start with communities with widespread participation and dynamic leaders. CCM will be more likely to be successful there, and it will be easier to build capacity in less organized settings once there are examples of successful community implementation and management. Similarly, some communities excel at self-support, whether in the health arena or others. Seeking them as starting points for CCM increases the likelihood of success.

Be aware of potential difficulties so as to avoid them. Systematic exclusion of representatives of certain groups (e.g., women, ethnic minorities, members of a political party) and self-interest (e.g., community leaders only involve family members in decision-making) are barriers to participation that may arise. Where there is a history of such noninclusion, managers can advocate for the benefits of representation from across the community.

A community management structure is a means to share responsibilities with the health system. A community management structure—a village health committee, a community health board, or other entity—is a mechanism for achieving improved governance at the local level: a sharing of responsibilities with the health system to achieve the goal of reduced child mortality and improved health. The community management structure is frequently one of the weakest components in a CCM or other community health program. Training, mentoring, and support for this group are often inadequate.

A community management structure contributes to:
- CHWs gaining respect, credibility, and motivation;
- raising awareness of CCM;
- ensuring that messages and services are appropriate, understood, and utilized;
- selecting CHWs;
- CHW accountability;
- strengthening linkages between the community, the local health system, and other decision-making organizations;[92]
- community engagement in and responsibility for CCM;
- building capacities for management of existing and future health and development initiatives;
- strengthening local governance and accountability;
- community ownership and empowerment, laying the groundwork for the sustainability of desired health practices.

Objectives of a community management structure. Objectives for a community management structure in the context of CCM efforts may include to:
- provide a support system for CHWs
- work with CHWs to mobilize the community for use and improvement of CCM
- assist with communication to and from the district health system and local administration
- advocate for CCM and the CHWs in the community and at the district level.

Characteristics of successful community management initiatives. Successful community management initiatives that contribute to participation, ownership, and sustainability of health efforts within communities share common characteristics as described below:

Involvement from the beginning. Communities should be engaged in advocating and planning for CCM from the outset.

Well-defined role. Well-functioning committees can summarize their roles and responsibilities and how they relate to other groups, including the CHWs, the health facility, and the district health authorities.

Links with formal health structure. For support and advocacy purposes, committees need mechanisms for ongoing communication with the nearest health facility or its representative. This relationship might include sharing data, restocking supplies, coordination of plans to increase coverage of services, and joint problem-solving for issues of concern to the community or the health center.

Healthy relationship with CHWs. When CHWs have the support of community committees their relationship with the community is stronger. This results in higher retention of CHWs and broader reach of services. Support might include: regular monitoring with joint problem-solving; joint facilitation of health forums or community feedback sessions; advocacy efforts for adequate supplies; assistance with the facilitation for referrals; community mobilization for behavior change, especially prompt recognition of danger signs and timely care-seeking from CHWs.

Protocols for operation. Committees that have protocols for their operations are more functional, effective, and sustainable. These might include: ground rules for meetings such as punctuality; discussing issues not persons; speaking in one's own language; an agenda prepared and presented at beginning of a meeting; keeping minutes; developing action items for follow-up at every meeting.

Use of data and quality monitoring. Providing information, sharing data and results, and celebrating successes are means to create ownership, ensure public accountability, and maintain committee and community interest. Data should be presented in a form that is easily understood by all members of the community.
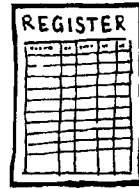
Communication with larger community. A committee that is known by the community and that receives information and provides feedback is one that is truly representative. Community meetings regarding program updates, progress, and accomplishments should be conducted at least quarterly. This is an ideal time to learn from the community what is working well and what can be improved.

Training and ongoing capacity-building opportunities. Committees that receive training on a continuing basis (including on-the-job support and mentoring) perform better and extend the reach, coverage, and continuation of program initiatives. Training can include understanding and presenting health data to the community, advocacy techniques for solving problems and mobilizing resources, participatory techniques for mobilizing the community to plan and act, and conflict resolution.

Analyze the advantages and disadvantages of working with an existing structure. Many communities have village health committees or the equivalent. They may exist as a result of national or district initiatives to encourage democratic processes and improve the accountability and responsiveness of local officials to the preferences of the local population, or they may have been established during ongoing community health programs, such as C-IMCI initiatives. Choosing to work or not work with an existing community structure may not be feasible or desirable. Where possible, efforts to improve existing structures should take priority. Table 6 outlines some of the benefits and drawbacks to consider and address, if needed.

TABLE 6: ADVANTAGES AND DISADVANTAGES OF WORKING WITH EXISTING COMMUNITY MANAGEMENT STRUCTURES

POSSIBLE ADVANTAGES	POSSIBLE DISADVANTAGES
• Quick start-up • Committee members already acquainted with one another • Cohesion and trust established • Proven willingness to support community activities • Support for initiatives, such as health reform or decentralization, that have fostered the committee activity; opportunity to strengthen the initiative • Avoids weakening existing structure by replacing it with a new one	• Inequitable representation: minority groups and/or people most affected by and interested in CCM not represented • Overburdened; already has multiple responsibilities • Autocratic operations: limited opportunities for active, open participation • Negative community perception: mistrust of committee selection process and/or functioning • Currently structured to achieve different ends

Steps for developing or strengthening a committee. Whether establishing a new management structure or working with an existing one, many of the steps are the same, as described in Table 7. The sequence is not fixed and should be adapted to the local situation.

TABLE 7: SUMMARY OF STEPS FOR DEVELOPING A NEW OR STRENGTHENING AN EXISTING COMMITTEE

ESTABLISHING A NEW COMMITTEE	STRENGTHENING AN EXISTING COMMITTEE
If needed, complement the situation-analysis information with additional data to understand the community makeup, social networks and groups, and any local or national initiatives for health decentralization that include the functioning of community health committees.	
Retrain and reorient district, facility, and program personnel to facilitate community mobilization efforts.	
Meet with community leaders to discuss program objectives and goals, and plan for mobilizing the community for participation.	Facilitate feedback from committee and community members regarding the role, perceptions, and functioning of the existing committee.
Conduct community-wide mobilization for the CCM program and the selection of committee members.	
Conduct initial training of committee members, including development of committee objectives, corresponding roles, and operating protocols.	Conduct training with committee to refine roles in relation to CCM and in response to feedback received on committee functioning to date.
Present committee and its roles and action plan to the larger community and encourage dialogue and feedback.	Conduct community-wide mobilization for CCM and the presentation of the additional or adapted role of the committee and its action plan; encourage dialogue and feedback.
Implement action plan.	
Present program progress and results to larger community, and solicit and gather feedback for action planning (at least quarterly).	
Provide ongoing monitoring, training, and support of committee activities and functioning.	
Update and revise action plans based on program quality, results, and feedback received.	

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Orient and train the community management structure. Planning for training starts with gathering input from committee members on what skills and knowledge they want and need to help the committee reach its objectives and successfully carry out its defined roles. In some countries where health reform is under way, existing training curriculums for community management structures can be obtained from the MOH. Table 8 outlines possible training topics for a community management structure. Some topics are applicable to more than one theme.

TABLE 8: POSSIBLE TRAINING TOPICS FOR A COMMUNITY MANAGEMENT STRUCTURE

COMMITTEE MANAGEMENT	UNDERSTANDING CCM
• Role of the management committee • Ground rules for meetings and protocols for operation (frequency, documentation, language to be used, timely start) • Monitoring the effective functioning of the management committee • Accounting for and managing essential medicine supply • Managing and controlling cash (if local cost recovery is in place) • Conflict resolution	• Disease epidemiology for children under five • Understanding and interpreting the health data to be monitored
	WORKING WITH CHWs
	• Role of the CHWs • Monitoring CHW performance and joint problem-solving techniques
WORKING WITH THE COMMUNITY	**WORKING WITH OTHER STAKEHOLDERS**
• Community mobilization techniques • Communication technique and messages to foster key family practices, with emphasis on prompt recognition of danger signs and prompt care-seeking from CHWs • Participatory techniques for acting on problems or opportunities (see "Tools that empower" in the toolkit at the end of this section) • Techniques for sharing health data with the community and local authorities	• Relationship-building with other groups such as the nearest health facility, other community-based organizations, and local government and administration • Using health data for advocacy and quality improvement • Resource mobilization

Supporting the community management structure. In addition to training, the following actions are important to strengthening and sustaining a community management structure.

- When possible, designate someone to mentor and look after the well-being of the community management structure on an ongoing basis. For example, the committee may receive supportive supervision and guidance from a community liaison staff member at the local health facility, a member of the district health management team, or a manager of a CCM effort.

- Provide support and mentoring at least once a month.
- Determine a clear protocol for the committee to obtain "on call" or "as needed" assistance.
- Foster cross-group learning, where committees from different geographical areas or different initiatives, such as community-based distribution of contraceptives, or water and sanitation committees, come together to share lessons learned and what is working or not working.

Consider financial viability for sustainability from the beginning

Financial viability, or achieving equilibrium between program income (the amount of money coming into the program from any source) and expenditures (the amount of money going out), is critical to the sustainability of CCM.

Equilibrium may not be achieved during program start-up, when there are potentially higher initial costs (e.g., initial intensive training, capitalization of a revolving medicine fund [RMF], etc.). However, strategies for financial viability must be planned early. As a program moves to a more stable ongoing situation it must reach a point of equilibrium if it is to remain financially solvent. The objective is to control expenditures and keep them at the lowest level consistent with providing and maintaining quality services.

Plan for a financial/cost analysis. Similar to the kind of financial planning that any business goes through with its balance sheet, CCM managers can generate a program balance sheet for a systematic analysis of ongoing program expenditures and income. This should take account of inflation for future years. A financial matrix helps to set targets for income and identify gaps between income and expenditures.

A basic financial analysis should cover the following areas.[93]

Income
- Is income going up or down over time?
- What is the source of the money (e.g., donors, national budget, fees, or loans)?
- Are the sources of income reliable?
- Are they flexible?
- Do they promote independence?
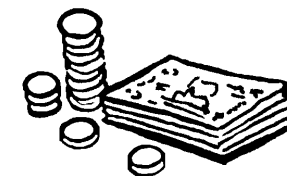
Expenditures
- Are expenditures going up or down over time?
- What is the balance between operating and capital costs?
- How much are the fixed costs? The variable costs?
- What activities are taking the most resources?
- Is efficiency improving?

Analyze program expenditures. Most expenditures of an established CCM program will be recurrent costs. Standard budget categories provide the basis for analysis of expenditures, including

- personnel;
- training;
- supplies;
- medicines; and
- supervision: transportation, per diem costs.

Monitor efficiency of expenditures and activities. A simple matrix can be used to track the efficiency of activities over time. Table 9 shows a matrix to analyze training efficiency over time; the same sort of analysis can be applied to other program inputs or activities.

TABLE 9: MATRIX TO ANALYZE EFFICIENCY OF TRAINING ACTIVITIES

	EXPENDITURES PER YEAR (IN US$)		
	2003	2004	2005
Number of CHWs trained	100	300	350
Total cost of training (US$)	10,000	20,000	21,000
Cost per person trained (US$)	100	67	60

Although training costs rose each year, the cost per CHW trained decreased. This indicates efficient and wise use of program funds.

Analyze program income. Possible sources of program income include one or more of the following.

- donor funds for start-up and "bridging" (partial funding) until financial viability is achieved;
- government funding;
- local fundraising; and
- cost recovery, including revolving medicine funds (RMF).

CCM and other health initiatives typically start with a mix of donor and government funding for the first three to five years. Even mature programs seek additional donor funding to make a significant new investment, e.g., to purchase additional supplies or treatment handbooks, to expand the program to new areas, or to implement a new training module.

Full financial sustainability after that time should be an objective. This may mean striving for CCM, where needed, to become a standard practice with the national health system, with its costs absorbed into national and local budgets.

Donor funds. A growing number of global funding mechanisms have the potential to be current or future sources of income for CCM, including the Global Fund to Fight AIDS, Tuberculosis, and Malaria, an international financing institution that supports large-scale prevention, treatment, and care programs against the three diseases.[94]

Bilateral cooperation is another source of funding. Possible funding mechanisms include the President's Malaria Initiative, a U.S. government program with resources dedicated to fighting malaria in 15 African countries;[95] the Belgian Development Cooperation; and AusAID, the Australian government's overseas aid program.

Planning for the long term should explore the possibility of incorporating CCM into large-scale, national comprehensive planning and financing mechanisms, such as Poverty Reduction Strategies,[96] as occurred in Nicaragua (Box 16). These strategies are frameworks for countries to articulate their development priorities and to specify the policies, programs, and resources needed to meet their goals, including the MDGs.

Global partnership initiatives that relate to CCM-treatable conditions, although not a source of funding, can be leveraged to influence donor and/or government funding. Examples of such partnerships include the Catalytic Initiative, which brings together many international agencies to strengthen health systems by delivering lifesaving health and nutritional services to disadvantaged children and pregnant women;[97] the Partnership for Maternal, Newborn, and Child Health, with its secretariat at the WHO;[98] and the Global Action Plan for the Control and Prevention of Pneumonia (GAPP), initiated by the WHO and UNICEF.[99]

Government funding. Although government funding may not include all program costs, it might cover critical components, such as personnel, transportation for supervision, and/or procurement and distribution of medicines. National, provincial, or district health funds for training and human resource development may also be available. "Buy-in" and a sense of ownership are critical to obtaining government financing for programs, but these require substantial investments in time and effort in order to yield the necessary political support and funding (Box 18).

It may be strategically advantageous to link CCM to programming that enjoys healthier funding streams within the MOH. For example, where malaria programming is emphasized at the central level, funding and interest might be generated for CCM of malaria, and the addition of pneumonia and diarrhea onto that foundation could be achieved at much lower cost.

Local or district-level funding. In decentralized systems, municipal or district autonomy in the design and delivery of health services may offer the possibility of funding for medicines, supplies, staff, or CCM-related activities.

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Local fundraising. Local fundraising may be an overlooked potential source of income. While funds acquired through this mechanism are generally modest and do not cover the majority of expenditures, they certainly help bring the balance sheet to a point of equilibrium. Possible sources of local funds include

- individual donors who live in or near the program area;
- "village support associations," established by former residents of small villages who have moved to larger cities in the country;
- organized groups of citizens or individuals living abroad, particularly those associated with the communities where CCM takes place;
- international service organizations, such as Rotary International, or the national branches of such international organizations;
- national corporations; and
- multinational corporations with local manufacturing or other presence.

Creativity might uncover other potential sources of local revenue.

Cost-recovery mechanisms. Cost-recovery mechanisms, or income from charges to clients, are another source of funding for CCM. Clients can be charged for any service for which they are willing to pay. In the case of CCM, they could be charged per consultation rather than for the medicines themselves. Although user fees can increase financial viability, they are complex to monitor. Moreover, they can exclude the poorest members of a community, unless there is a means to ensure free care for them.

A few programs have integrated income-generating activities (e.g., production and sales of local handicrafts or foods) as a funding option. But they may draw energy and focus away from health activities. Community-based health insurance schemes, sometimes called mutual health organizations, are another potential funding mechanism for CCM. In these small-scale, voluntary health insurance programs, organized and managed in a participatory manner, members contribute a small annual fee to cover part of health care costs, often medicines. They may be entirely financed locally, or they may involve cost-sharing with government.[100]

In light of community members' typically high demand for medicines and the ease of accounting for a tangible stock item like medicines, RMFs are a popular cost-recovery mechanism for CCM. Section IV, "Increasing Access," addresses RMFs in detail. RMFs are often designed so that the income generated only covers ongoing medicine expenditures and is not sufficient to cover other recurrent program costs (e.g., supervision, training, etc.). If this is the case, other income sources are necessary to reach a point of full financial equilibrium.

Box 18: A slower, more difficult advocacy process contributes to an enabled environment[101]

In 2007, a CCM initiative involving community pharmacies (*boticas*), which provided a source of medicines and basic treatment in remote rural communities in Bolivia, threatened to come to an end when a donor grant ended. Set up as a parallel initiative, this program had little connection with the government health system at the national or local levels. In the absence of government health structures to manage supervision and logistics for the *boticas*, the quality of services and continued medicine supplies could not be ensured.

Save the Children led an advocacy initiative to better link the *boticas* to the MOH service system for medicine supply and develop a training approach to ensure that the CHWs (community volunteers) were better able to provide good quality services. This effort was a departure from the traditional role of NGOs.

The effort involved the government from the beginning and started with developing and formalizing the relationship with the national and departmental (provincial) officials of the MOH units responsible for the CCM initiative. The next step was to conduct a diagnostic review of the *botica* system to document how it was currently working and identify problem areas. The study found many strengths in the *botica* program, including approval by the local population, its leaders, local governments, and the staff of health facilities. It also revealed that training for the volunteers who managed the community pharmacies was haphazard at best, and that administrative structures for replenishing medicine supplies were unclear. Furthermore, the *boticas* were set up as small businesses with RMFs. But the government subsidized the medicines available at health facilities and distributed them free of charge. Community members resisted paying the *botica* volunteer for medicines that were given for free at the health center.

Major stakeholders at the national level received the report well, and acknowledged a flaw in CCM design—failure to take into account subsidized medicines. Subsequent steps in the advocacy approach included the design and pilot testing of a multitiered training design, which started with developing an enabling environment for the *boticas* and culminated in training the *botica* promoters on operational issues of medicine management. Next, train-the-trainer sessions were held throughout the nation. The technical accuracy and usability of the guidebook for *botica* volunteers was improved to ensure it was consistent with national C-IMCI standards, and a complete CCM training package was prepared. Giving high-level MOH staff the opportunity to directly observe implementation of CCM and speak to volunteers and sponsoring a speech by a well-known CCM expert were other influential advocacy activities.

Overall, it was a slow and often difficult process, involving many challenges such as political interference, instability of staff, slow bureaucracy, inefficiency, and competing interests between the MOH units. However, the gains outweighed the difficulties. Policy was realigned to foster equity in access to subsidized medications, and improved instruments, tools, and training materials, along with the trainers to provide the training, were in place. Although the government did not commit to fully funding CCM, it established mechanisms to ensure that *boticas* were linked to the national health insurance package covering women and children.

Monitor the environment

Typical indicators of an enabled social and policy environment at the national and district levels do not require special data collection techniques. But they do remind managers to be alert for changes in policies and political leaders at the national, regional, and district levels, and to take advantage of opportunities that arise. A newly elected district council might place higher priority on child health than a previous one and be more willing to allocate funds to health initiatives. In contrast, a new district administration might mean the loss of an important partner—the district health manager. While some changes can be anticipated, others cannot, and sometimes strategies and activities to foster an enabled environment have to begin anew.
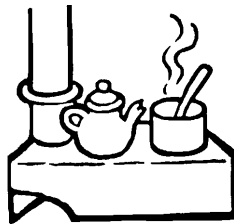
Toolkit: resources for enabling a supportive environment

Documents to summarize the evidence for CCM

Impact of under-five mortality: need for CCM
Bryce J et al. WHO estimates of the causes of death in children. *Lancet*, 2005, 365(9465):1147–1152.

CCM for diarrhea
WHO/UNICEF Joint statement: clinical management of acute diarrhoea. Geneva and New York, WHO and UNICEF, 2004 (WHO/FCH/CAH/04.07 or UNICEF/PD/Diarrhoea/01).

CCM for malaria
Gilroy KE, Winch PJ. *Management of sick children by community health workers: intervention models and programme examples*. New York and Geneva, UNICEF/WHO, March 2006.

Kidane G, Morrow RH. Teaching mothers to provide home treatment of malaria in Tigray, Ethiopia: a randomised trial. *Lancet*, 2000, 356(9229):550–555.

CCM for pneumonia
Sazawal S, Black RE. Effect of pneumonia case management on mortality in neonates, infants, and preschool children: a meta-analysis of community-based trials. *Lancet Infectious Diseases*, 2003, 3(9):547–556.

WHO/UNICEF Joint statement: management of pneumonia in community settings. Geneva and New York, WHO and UNICEF, 2004 (WHO.FCH/CAH/04.06 or UNICEF/PD/Pneumonia/01).

CCM for acute severe malnutrition
Community-based management of severe acute malnutrition: a joint statement by the World Health Organization, the World Food Programme, the United Nations System Standing Committee on Nutrition and the United Nations Children's Fund. WHO/World Food Programme/United Nations System Standing Committee on Nutrition/UNICEF, 2007.

CCM for neonatal sepsis (trials in controlled settings)
Bang AT et al. Effect of home-based neonatal care and management of sepsis on neonatal mortality: field trial in rural India. *Lancet*, 1999, 354(9194):1955–1961.

Bang AT et al. Is home-based diagnosis and treatment of neonatal sepsis feasible and effective? Seven years of intervention in the Gadchiroli field trial (1996 to 2003). *Journal of Perinatology*, 2005, 25 Suppl 1:S62–71.

Programmatic references and guidelines

Advocacy
Sharma, RR. *An introduction to advocacy: training guide*. Washington, DC, Support for Analysis and Research in Africa (SARA), Health and Human Resources Analysis for Africa (HHRAA), USAID, n.d.

Capacity-building and institutionalization
Franco LM et al. *Sustaining quality of healthcare: institutionalization of quality assurance*. Bethesda, MD, the Quality Assurance Project for USAID, 2002, QA Monograph Series 2(1).
> This gives an overall framework for institutionalization of novel ideas. The ideas set out in the institutionalization section loosely follow the framework of this document, adapted to the case of CCM.

LaFond A, Brown L. *A guide to monitoring and evaluating capacity building interventions in the health sector in developing countries*. Chapel Hill, NC, Carolina Population Center, University of North Carolina, Chapel Hill, 2003 (MEASURE Evaluation Manual Series, No. 7). http://www.cpc.unc.edu/measure/publications/pdf/ms-03-07.pdf.
> This reference sets up a framework for measurement of capacity at various levels. It focuses on government entities (e.g., MOH).

Management Sciences for Health (MSH). *The health manager's toolkit*, part of the Manager's Electronic Resource Center. http://erc.msh.org/index.cfm
> This is a comprehensive, well-tested, and well-respected practical guide to carrying out capacity building. This focuses on Ministry of Health managers.

USAID/GH/HIDN/Child Survival and Health Grants Program. Technical Reference Material. *Capacity Building*, 2006.

Financial viability
Financing and sustainability issues. In: Quick J, ed. *Managing drug supply: the selection, procurement, distribution, and use of pharmaceuticals*, 2nd ed. Sterling, VA, Management Sciences for Health and WHO, 1997:605–710.

Revolving medicine funds. In: Quick J, ed. *Managing drug supply: the selection, procurement, distribution, and use of pharmaceuticals*, 2nd ed. Sterling, VA, Management Sciences for Health and WHO, 1997:688.

Community competency and community mobilization
Child health in the community: briefing package for facilitators. Reference document (chapter 5: C-IMCI Planning for Implementation at the Community Level). WHO/UNICEF/CORE, 2004. http://www.coregroup.org/working_groups/imci_briefing.cfm

Howard-Grabman L. *Demystifying community mobilization*. Baltimore, MD, ACCESS Project. 2007.

Howard-Grabman L, Snetro G. *How to mobilize communities for health and social change*. Baltimore, MD, Health Communication Partnership, Johns Hopkins Bloomberg School of Public Health/Center for Communication Programs, 2000.

Murray J, Bhattacharyya K. 1999. *Participatory community planning for child health: implementation guidelines*. Arlington, VA, BASICS Project. (Download or request copies of select publications from www.basics.org.)

Key research and/or evaluation questions for CCM[102,103,104]

CHWs
- What is the cost and performance of different training methods for (illiterate/literate) CHWs?
- Are CHWs able to assess, classify, and treat various illnesses under integrated CCM?
- What are the best ways to improve and sustain performance of CHWs?
- What are the best methods for evaluating the quality of service provided by CHW?
- What is the impact on the performance of CHWs when management of one disease or more is added to the existing responsibility?
- What is the optimal number of CHWs to give near universal coverage to a given geographic area?
- How can CHWs involved in CCM best deliver essential newborn care interventions?

Caregivers
- Are caregivers using CCM services?
- Are caregivers following treatment recommendations properly?

Impact
- What is the impact of CCM on antimicrobial resistance?
- What is the impact of CCM on medicine use in the community?

Management of illnesses
- How can available tools (RDTs, clinical signs, timers, medicines, etc.) be combined into clinical algorithms, and what is the algorithm performance in different epidemiologic scenarios?
- What is the appropriate duration of antibiotic treatment of WHO-defined non-severe pneumonia in African settings?
- Can CHWs treat WHO-defined severe pneumonia in the community?
- What is the impact of pre-referral medicines on clinical outcomes of children with severe disease?

Other Issues
- What is the cost and cost-effectiveness of CCM and which methods are appropriate for cost recovery and financing?
- Which effective coverage can be reached by CCM (equity, community effectiveness, etc.)?
- How can the private sector become involved in delivering integrated CCM?

- What is the level of health-system support for CCM? How acceptable are CHWs to the health system, and how can CCM requirements for medicines, supplies, supervision, etc. be met?
- What are health-system effects of CCM (caseload mix, number of patients, etc.)?
- How can age-dose regimens for different medicines be harmonized, and what are the effects on treatment of different packaging techniques?
- How does the inclusion of social marketing with CCM affect health indicators for children?
- What is the relationship between community mobilization and care-seeking behaviors at the household level?
- Do community management structures (e.g., health committees) improve child health indicators?
- How do community-based data influence decision-making at central levels within the MOH?
- What is the relative effectiveness of different referral systems?

Example of a policy brief for MOH officials

Controlling Childhood Pneumonia in Ethiopia
David Marsh and Tedbabe Degefie (Save the Children)
20 May 2008

Mortality and Morbidity Pneumonia is the leading killer of children globally, accounting for about 2 million deaths annually, 2.4 million if neonatal pneumonia/sepsis is included. Ethiopia, with high under-five mortality due to pneumonia and diarrhea and low mortality due to malaria,[1] has nearly 4 million cases of child pneumonia annually,[2] of which 114,000 result in death.[3] MDG 4 cannot be reached without controlling these conditions.

Coverage of Pneumonia Control Interventions National coverage of the main pneumonia preventive interventions is not high: exclusive breastfeeding among children less than six months of age (49%), zinc for diarrhea (0.2%)[4] and measles and DPT-HepB-Hib3 vaccinations (65.2% and 73.1%).[5] Use of case management for cough and difficult or fast breathing is very low (19%,[6] with only about a quarter of those [4.9%] actually receiving antibiotics); thus, more than 3.8 million cases go untreated. Annual counts of pneumonia treatments from district health systems confirm low treatment coverage for the estimated 0.3 cases of pneumonia per child per year.[7]

1   Black RE, Morris SS, Bryce J. Where and why are 10 million children dying every year? *Lancet*, 2003, 361:2226–2234.

2   Rudan I, Boschi-Pinto C, Biloglav Z, Mulholland K, and Campbell H. Epidemiology and etiology of childhood pneumonia. *Bulletin of World Health Organization*, 2008, 86(5):408–416.

3   UNICEF/WHO. *Pneumonia, the Forgotten Killer of Children*, 2006.

4   *Ethiopia Demographic and Health Survey 2005*. Addis Ababa, Ethiopia, and Calverton, MD, Central Statistical Agency [Ethiopia] and ORC Macro, 2006.

5   Federal Ministry of Health, Routine Immunization Report, 2007.

6   *Ethiopia Demographic and Health Survey 2005*. Addis Ababa, Ethiopia, and Calverton, MD, Central Statistical Agency [Ethiopia] and ORC Macro, 2006.

7   UNICEF/WHO. Pneumonia: the forgotten killer of children. New York and Geneva, UNICEF and World Health Organization, 2006.

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The low coverage of preventive, and especially treatment, interventions is multifactorial, involving challenges of access to, perceived quality of, and demand for service as well as the policy environment. Unlike preventive care which can be scheduled, curative care is needed unpredictably and often urgently. Not surprisingly, access to health facilities (< 10 km: 63%)[8] is less than access to, say, immunizations (as DPT-HepB-Hib1: 81.7%);[9] moreover, case management is not available at all facilities, and 10 kilometers is beyond the reach of many caregivers carrying sick children. The correct case management of pneumonia was low (5%) in ESHE's 2003–2004 facility surveys of three regions.[8] Less than half (45%) of caregivers recognized three or more danger signs related to acute respiratory infections, fever, and diarrhea in the same surveys.[8] Ethiopian policy forbids nonprofessionals to treat pneumonia because of cost, complexity, burdening peripheral providers, fear of misuse of antibiotics and antimicrobial antimicrobial resistance, and concerns that it is "not the right time," among others.

Health Extension Program Launched in 2004–2005, the Health Extension Program (HEP) is a pro-poor strategy to help implement the Essential Health Services Package for Ethiopia.[10] Central to the HEP are 30,000 Health Extension Workers (HEW), two per *kebele*, who deliver "promotive, preventive and selected curative health care services in an accessible and equitable manner to reach all segments of the population, with special attention to mothers and children...and those in rural areas." HEWs manage malaria with rapid diagnostic (blood) tests and Coartem©. If HEWs are trained in IMCI, they are able to assess, classify, and refer—but do not treat—suspected pneumonia. A typical *kebele* has about 1,000 children and 300 cases of child pneumonia annually; thus, the HEWs might refer suspected pneumonia almost daily. Moreover, many sick children have signs of both malaria (fever) and pneumonia (rapid breathing) and need treatment for both. Treating malaria and referring the same child for pneumonia treatment may not be the best strategy. Referrals lacking feasibility—due to health center inaccessibility—jeopardize HEW and health care system credibility.

Global Trends in Pneumonia Control Community case management (CCM) of pneumonia is an evidence-based[11] internationally recommended[12,13] strategy for communities lacking access to facility-based treatment. The strategy rests on training, supervising, and supplying community health workers to assess, classify and treat sick children, referring those with severe illness. Half (27 of 54) of the MDG "countdown countries" with highest rates or numbers of child death currently implement CCM. More countries plan to introduce it.[14]

8   Twelve baseline health surveys conducted in three regions—Amhara, Oromiya and Southern Nations, Nationalities, and Peoples. Addis Ababa, USAID/ESHE, 2005.

9   Federal Ministry of Health. Routine Immunization Report, 2007.

10   Federal Ministry of Health. *Essential Health Services Package for Ethiopia*, 2005.

11   Sazawal S, Black RE. Effect of pneumonia case management on mortality in neonates, infants, and preschool children: a meta-analysis of community-based trials. *Lancet Infect Dis. 3*, 2003, 9:547–556.

12   WHO. Meeting Report: Evidence base for community management of pneumonia, Stockholm, 11–12 June. *WHO/FCH/CAH/02.23*. Geneva, World Health Organization, 2002.

13   WHO/UNICEF. Joint Statement: Management of Pneumonia in Community Settings. Geneva and New York, World Health Organization and UNICEF, 2004.

14   Marsh DR, Gilroy K, Van de Weerdt R, Wansi E, Qazi S. Community Case Management of Pneumonia–At A Tipping Point? *Bulletin of the World Health Organization*, 2008, 86(5):381–389.

The World Health Organization, UNICEF, and partners conceived "GAPP," the Global Action Plan for Pneumonia, to increase awareness about the world's leading killer of children, to call for scaling up proven interventions and strategies, and to develop an action plan.[15] The main proven interventions are case management (facility and community) and immunizations (pertussis, measles, Hib, and Pneumovax), along with exclusive breastfeeding and zinc. GAPP aims to accomplish this, in part, through: (a) CCM policy dialogue at the Capetown "Countdown to 2015" conference, (b) a theme issue of the *Bulletin of the World Health Organization* in May 2008—"Prevention and Control of Childhood Pneumonia," (c) a World Health Assembly resolution, and (d) a community case management task force.

Save the Children, USA, prioritized CCM (of diarrhea, dysentery, malaria, pneumonia, and sometimes newborn sepsis) as a global initiative, within which we tested CCM in Liben *Woreda*, Oromia Region **before** HEP. Families' care-seeking for cough and difficult or fast breathing increased threefold, from 17% in 1997 to 58% in 2001, after facility-based services were strengthened. But we were unsatisfied with the remaining treatment gap—so with *woreda*, zonal, regional, and federal Ministry of Health support—we pilot-tested CCM of diarrhea, malaria, and pneumonia. After training and deploying 45 CCM workers in remote *kebeles*, care-seeking further increased to 84% in 2006. All the increase was due to use of CCM, which treated 1,408 cases of pneumonia over 14 months, 43% of the estimated cases and more than all the *woredas'* health facilities combined. Nearly all CCM workers scored > 80% on proficiency tests and register review (80% and 90%, respectively).[16]

Opportunity for Leadership Ethiopia has a large burden of avoidable childhood pneumonia mortality, resulting mainly from the disappointing use of available curative interventions. Furthermore, the proposed new health information system will no longer count outpatient pneumonia treatment. Childhood pneumonia may "disappear" from the table of policy makers. Ethiopia has a promising strategy, however, to deliver interventions through HEWs, far better educated and trained than the Liben CCM workers. Can we ask them to deliver **another** intervention when childhood pneumonia is just one of many competing priorities? Knowledgeable experts conceived the strategy and its interventions, and an external evaluation is under way. The results might call for its adaptation, perhaps along the lines of the evidence-based "Lancet interventions,"[17,18] which target children under five, society's most vulnerable. In the long run, preventive interventions are more cost-effective than curative ones. But before achieving the "long run," a judicious choice of curative interventions—including accessible pneumonia case management—will reduce suffering and death. Without CCM, parents will

15   WHO. Global Action Plan for the Prevention and Control of Pneumonia (GAPP), Report of an Informal Consultation, La Mainaz, Gex, France, 5–7 March 2007. Geneva, World Health Organization, 2007.

16   Degefie T, Marsh D, Gebremariam A, Tefera W, Osborn G, Waltensperger K. Community case management improves use of life-saving curative interventions among pastoralists in Ethiopia's Oromiya region. Under review, *Ethiopian Journal of Health Development*.

17   Jones G, Steketee RW, Black RE, Bhutta ZA, Morris SS, and the Bellagio Child Survival Study Group. How many child deaths can we prevent this year? *Lancet*, 2003, 362:11–17.

18   Darmstadt GL, Bhutta ZA, Cousens S, Adam T, Walker N, de Bernis L, for the Lancet Neonatal Survival Steering Team. Evidence-based, cost-effective interventions: how many newborn babies can we save? Published online 3 March 2005 (http://image.thelancet.com/extras/05art1217web.pdf).

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continue to delay seeking care, go to local healers who lack case management skills, or seek no care at all.

Ethiopia can take steps to control childhood pneumonia, some easier than others. Among the former are (1) continue to count outpatient childhood pneumonia treatments and track annually the proportion of estimated cases actually treated; (2) continue to strengthen routine EPI; (3) promote early initiation and exclusive breastfeeding for at least six months, (4) roll out zinc for diarrhea—which provides several months protection against acquiring both diarrhea **and** pneumonia; and (5) continue to test feasibility, effectiveness, and cost-effectiveness of CCM for pneumonia in different settings. Highly visible national and international leadership steps would be (6) move incrementally toward an officially written policy endorsing community case management as part of IMNCI in the next HSDP revision and (7) sponsor a resolution at the next World Health Assembly to endorse the Global Action Plan for Pneumonia.

Tools that empower and build community capacity to analyze problems, prioritize, plan, implement, and evaluate activities

Strengthening community capacity to analyze problems, and to plan, implement, and evaluate community health activities creates ownership and enhances ability to manage the activities. Below is a brief discussion of some tools that have been successfully used to empower committees and communities.

Participatory Learning and Action techniques. These include a group of tools designed to help communities define priority health needs and opportunities, and suggest and implement local solutions. Most techniques are visual in nature. Tools include mapping exercises, the development of seasonal calendars, and matrices or ranking exercises. Mapping exercises may represent geography: the layout of the community and who needs to be reached, such as households with children under five. A map can also represent a theme, such as the communication linkages between a health facility and the community. Seasonal calendars facilitate the understanding of when diseases most commonly occur or when time is more readily available for participation in community events. Participatory learning and action exercises can be used for monitoring and evaluating as well as analysis and planning. Repeating them after a period of implementation can make clear what has changed, and what has not.

Triple A Cycle[105] (Assessment, Analysis, and Action). This model from UNICEF facilitates action planning at the community level. The cycle, which is repeated as needed, includes
- assessment of the situation of children,
- analysis of the causes of and contributors to the problem, and
- action based on the analysis and available resources.

The following are examples of questions to facilitate a triple A cycle discussion during a community meeting.
- What progress in CCM (e.g., treating children for diarrhea) was made between 2008 and 2009?
- What is our goal for reaching children who need to be treated for diarrhea?

- Why are some children who need treatment not receiving it?
- What can we do to ensure more children receive the benefits of CCM?

Appreciative Inquiry. This approach encourages a discovery of the best of the past to create an empowering vision of the future, leading to action to obtain the desired vision. Usually, the process is divided into 4 steps: discover, dream, design, and deliver.

This tool may be useful for committees and communities that are ready to move beyond short-term action planning and improve their self-management skills. It helps create a longer-term vision and a corresponding action plan with benchmarks set toward achieving the vision.

The Web site of the Appreciative Inquiry Commons contains numerous practical tools for training design and workshops: http://appreciativeinquiry.case.edu/practice/toolsTraining.cfm.

Community Mobilization for Health and Social Change.[106] This approach follows a process known as the community action cycle, which draws on many of the theories and concepts of a social systems approach to individual change and social change. It is based on the premise that community mobilization builds confidence, and when communities start believing in themselves, they become inspired to act. A field guide outlines general principles and methods for community mobilization that need to be adapted to the particular setting. The community action cycle consists of seven steps.
1. Prepare to mobilize.
2. Organize the community for action.
3. Explore the health issue and set priorities.
4. Plan together.
5. Act together.
6. Evaluate together.
7. Prepare to scale up.

Section IV:

Increasing Access to and Availability of CCM Services and Supplies

Overview and definitions

Access and availability refer to measures of the likelihood that a person will actually reach the service delivery point and the likelihood that the service will be available. Access refers not only to geography but also to sociocultural and economic factors that are barriers to care, such as language differences that prevent families from communicating with providers at a health facility. Temporal factors—from snowstorms to festival season—may also affect access. Access also includes the availability of treatments.

"Access" must be defined locally. Common definitions for geographic access are residing within five or within ten kilometers of a health provider who can deliver case management of childhood illnesses. One or more maps can show each facility with case management at the center of a circle with a radius of five or ten kilometers. The population outside the circles needs CCM. In Figure 6, the population outside the small circles needs CCM. Terrain and natural obstacles may also affect access; the time required to reach a service rather than physical distance may be used to define access, although this is not as easy to map. Access may also vary according to the calendar. For example, seasonal flooding or daytime demands of agricultural work may render facility-based services temporarily inaccessible, even if they are not geographically distant.

There must be a balance between implementing CCM in extremely low-access communities and in reaching the largest population in need. Three homesteads on a mountaintop may be the neediest community, but carrying out CCM to benefit this tiny population could consume most of the budget.

CCM is the strategy for increasing access: the choice of interventions depends on many factors. Increasingly, countries initiating CCM adopt an integrated approach, where guidelines for CHWs address assessment and treatment of diarrhea,

pneumonia, and malaria (in malaria areas), and assessment and referral for signs of severe illness (dysentery, severe pneumonia and malaria, and acute severe malnutrition) for the case management of sick children age two months up to five years.

Nonetheless, many countries and programs begin with a focus on a single priority condition and later add other conditions. The reasons for this are many and range from financial to epidemiological. An integrated approach to CCM requires more time and funding, as the slow expansion of facility-based IMCI in some countries suggests. In some countries, more limited approaches to CCM have existed for years, and new interventions, such as zinc for diarrhea, were added only recently. In others, decision-makers are reluctant to allow CHWs to dispense antibiotics but accept CCM of other conditions. In some cases, the focus of CCM is shaped by differing health priorities and the availability of funding, such as efforts to combat AIDS, tuberculosis, and malaria.

FIGURE 6: ILLUSTRATIVE MAP OF COMMUNITIES THAT NEED CCM
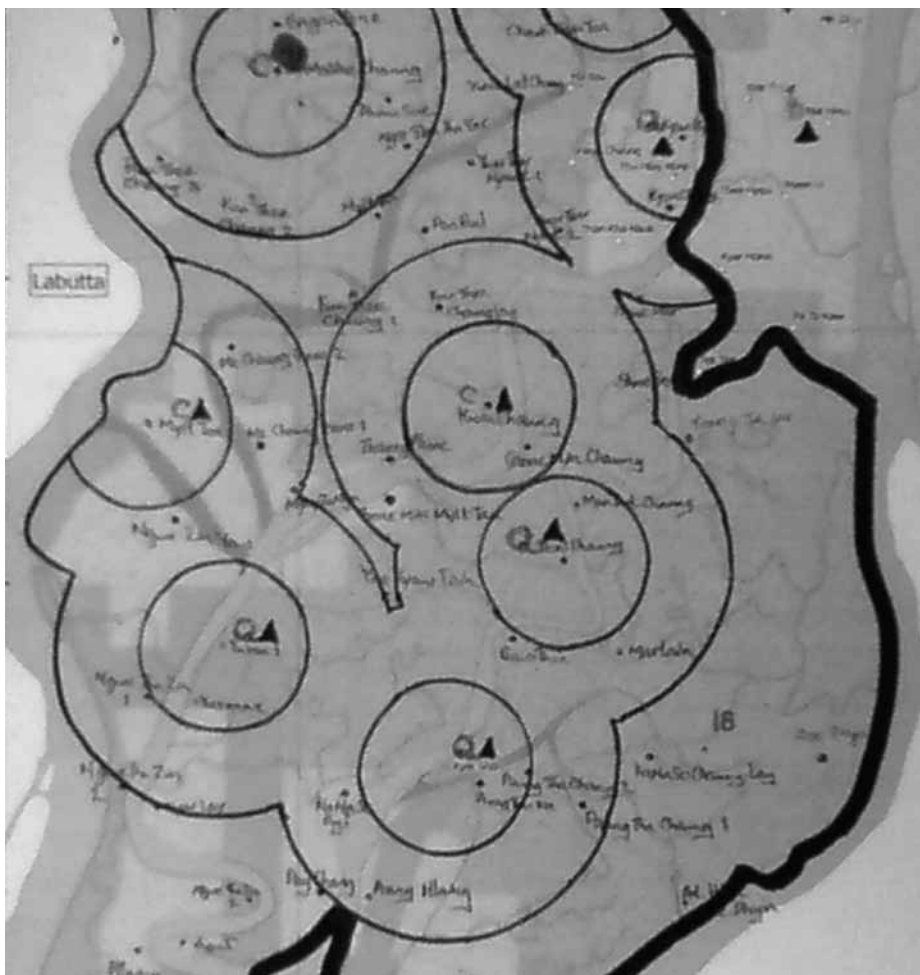
Source: *Marsh D*

Sample indicators of access to and availability of lifesaving interventions. Possible indicators of access and availability are shown in Table 10. Several indicators represent more than one result. For example, other possible indicators of demand are also indicators of quality and use of CCM. For example, availability of CCM medicines with CHW is an indicator of availability but also of quality.

TABLE 10: SAMPLE INDICATORS OF INCREASED ACCESS AND AVAILABILITY OF LIFESAVING INTERVENTIONS[80]

INDICATOR	DEFINITION	SOURCE OF DATA	FREQUENCY OF COLLECTION	POINT PERSON	COMMENTS
Communities with access to CCM	% target communities with active CHW delivering	List or wall chart tracking active CHWs by community	Twice annually	Manager	Denominator (impact area) defined locally, e.g., communities more than 5 km or 1–2 hours travel distance from facility— standard = 80% use at level of impact area (district or national)
Availability of CCM medicines at supply point	# stock-outs CCM medicines at supply point on the day of inquiry	Medicine stock register	Monthly/ quarterly (depending on supervision schedule)	Manager	Standard = 0 (no stock outs)— district level also an indicator of quality

Indicator	Definition	Source of data	Frequency of collection	Point person	Comments
Availability of CCM medicines with CHW	# (%) CHWs with each antibiotic, antimalarial, ORS (and other treatments) on day of supervision	Supervisor checklist	Monthly/ quarterly	Supervisor	Also indicator of quality— standard = 100% (continual availability)— community level also an indicator of quality
Referral rate	# (%) children referred/total # children seen by CHW in given time	CHW records or CCM register	Monthly/ quarterly	Supervisor	Standard = 20%[107] district level
Referrals completed	# completed referrals/# recommended referrals, as %, by worker, by supervision unit, by project, by syndrome	CCM register	Quarterly	Supervisor	Also indicator of use— standard = 80%[108] district level

Strategies, interventions, and activities to increase access and availability

Review the findings of the situation analysis. Drawing on the findings and conclusions regarding access (and child mortality and disease), managers can identify the interventions most likely to improve child health and the cadre of CHWs best suited to deliver them.

Selecting interventions: integrated or not? Deciding which interventions (antibiotics, antimalarials, zinc, etc.) to include in CCM is the first, and perhaps the most difficult, step. Despite widespread consensus on the value of an integrated package, implementing it is not always feasible.

Establishing CHWs. This addresses decisions related to identifying the best group of community-based providers to provide CCM, the selection criteria and process, and the essential tasks they carry out. CHWs are only one human resource for CCM. Establishing supervisors and managers is also essential. Section V, "Increasing the Quality of CCM," addresses this issue.

Ensuring medicines and supplies. A well-functioning supply or logistics system reduces or avoids stock-outs, and thus ensures that the lifesaving interventions central to CCM are available.

Building a facilitated referral system. Facilitated referral is a multicomponent approach to addressing the low success rates of referral systems that rely solely on verbal referral. It entails multiple actions on the part of the CHW and the referral facility, including counseling caregivers, monitoring referrals and counter-referrals, addressing barriers to referral, and ensuring good quality of care at the referral facility.

Monitoring and evaluating access. CHW records are the core of the monitoring and evaluation system and include information on the availability of medicines and supplies as well as referrals. Monitoring access tells managers if services are reaching sick children and if the treatments required for CCM are at the place of service.

Selecting CCM interventions: integrated or not?

The feasibility of integrated CCM depends on epidemiological, political, financial, and programmatic factors. Issues to consider in decision-making about which lifesaving interventions to deliver through CCM include

- epidemiology: the main causes of under-five mortality;
- program: existing community-based or CCM efforts; the type and focus of existing CHWs;
- finance: sources of funding for an integrated as opposed to a vertical program; costs of treatments;
- political disposition: willingness to allow CHWs to use multiple medicines (or a particular treatment) as opposed to insistence on a fully integrated community-based IMCI approach;
- regulatory and logistical: approval of interventions (e.g., zinc for diarrhea), current availability, procurement mechanisms; and
- scale of the program: small-scale, limited geographical area as opposed to large-scale, regional or national.

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Box 19: Three pathways to integrating interventions in CCM

The starting point of CCM in Nepal was semiannual vitamin A capsule distribution by CHWs, beginning in 1993.[109] After successful pilot testing of CCM of pneumonia, this intervention was integrated into the package in the late 1990s and now reaches 80% of the under-five population. CCM of diarrhea with zinc and low-osmolarity ORS was added in 2006 and is gradually being introduced. The program is testing different modalities of essential newborn care, including identification of possible severe bacterial infections, initial treatment with antibiotics, and referral for further treatment.[110] Malaria is managed at the health-facility level.

Senegal began CCM through its system of "health huts," in operation since the late 1950s. From the health huts, trained CHWs provide preventive and curative services, including treatment of malaria, diarrhea, and other minor ailments. However, it was not until research in the mid-2000s showed that CHWs could manage pneumonia with antibiotics that this intervention was integrated into the CCM.

An assessment in Mberre district in Eastern Kenya found that malaria, malnutrition, pneumonia, and diarrhea were the most prevalent childhood diseases.[111] Based on these findings, the MOH and its partner, Catholic Relief Services, decided to develop and test integrated CCM that addressed these conditions and complemented the national IMCI facility-based guidelines, which were adapted for use by CHWs. The guidelines and accompanying manuals and tools became part of the "Level 1" health infrastructure outlines in the MOH Strategic Plan for 2007–2010.

Start with national IMCI guidelines. Just as the national IMCI task force is a logical starting point for advocating for CCM, reviewing national IMCI guidelines or their equivalent is a first step in selecting CCM interventions and adapting guidelines for use in a specific country or program setting. Working with national task forces and their corresponding technical groups to adapt or develop guidelines for CCM also builds capacities needed for sustainability and eventual program expansion.
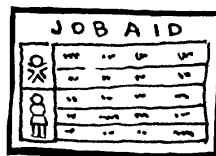
Including malaria treatment depends on epidemiology. Antimalarials are an important CCM intervention in areas that have a "high malaria risk," or where more than 5% of the fever cases in children are due to malaria.[75] High-risk areas include most countries in Africa south of the Sahara, major parts of the Eastern Mediterranean, many countries in Southeast Asia, where rates of medicine and insecticide resistance are high, and, the rainforest zones of almost all countries in the Americas.[112] The seasonality of malaria risk—dry season versus raining season—is another consideration, particularly for ensuring supplies of antimalarials. Some algorithms vary with the season.

Treatment for diarrhea and pneumonia can have high impact. As noted in the introduction, these two conditions account for much under-five mortality. CCM for diarrhea with zinc and ORS often does not involve much controversy,

but the availability of zinc and ensuring that caregivers provide the full 10–14 day course are issues requiring attention. In contrast, many countries have reservations about CCM for pneumonia, despite its potential for reducing child deaths. In areas where both malaria and pneumonia are prevalent, there is a strong argument for integrating management of these two diseases, as both present with fever, and CHWs should be able to classify and treat according to differing signs.
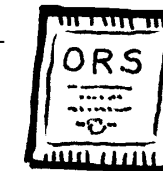
CCM for neonatal sepsis may be possible, but service delivery models are very different from those of CCM for older infants and young children. CCM with interventions to treat newborn sepsis generally includes injections. Although careful training and supervision can assure correct, safe injection practices by CHWs, service delivery models for CCM of newborn sepsis typically involve a different cadre of worker from those of CCM for older infants and children. The latter also focus on a different population: pregnant and newly delivered mothers and their infants. Programs that integrate CCM for newborn sepsis usually start with a combination of case management for pneumonia, diarrhea, and/or malaria. After gaining experience, they then add case management for neonatal sepsis. As mentioned in the introduction, WHO and UNICEF currently recommend that CHWs conduct home visits to identify newborns with severe illness and assist families in seeking facility-based treatment.[15]

Management of acute severe malnutrition is changing. Assessment for acute severe malnutrition and referral for children with danger signs is starting to be included in CCM. Treatment at a facility may include numerous interventions, including correction of nutrient deficiencies, reversal of metabolic abnormalities, and intensive feeding. However, it is now recognized that about 80% of children with severe acute malnutrition can be treated at home by a trained health worker.[8] The treatment is to feed children a ready-to-use therapeutic food (RUTF) until they have gained adequate weight. Programs that work with or are considering introducing RUTF increasingly rely on CHWs to manage children with acute severe malnutrition.

Other possible interventions. In many countries, CHWs participate in twice-yearly distribution of vitamin A supplements. This may be a platform on which to build a CCM program, or it may be included in the tasks of a CHW. Some countries include treatment of intestinal parasites in CCM. In some settings there is at least a decade of experience with community-based treatment of onchocerciasis or guinea worm. With expanding access to skilled attendance at birth, CHWs may have a role to play assessing and treating newborn sepsis. The CHW could help pregnant women plan for delivery and assist the midwife in home delivery. Care could be divided: the CHW provides care to the newborn, while the midwife

attends to the mother's needs. Although few countries use CCM to deliver interventions for prevention, treatment, and palliation of HIV/AIDS, CCM seems a logical strategy to deliver cotrimoxazole prophylaxis to HIV-positive children (see "Adjust guidelines" below).

Adjust guidelines for country-specific indications on treatment and referrals. A small technical working group can be responsible for this task. Guidelines describe the types and combinations of clinical signs used to assess the main symptoms and signs of common childhood illnesses and provide action-oriented classifications for each main symptom. Typical guidelines use the classifications and actions shown in the Sick Child Recording form shown in Figure 7 for the management of a sick child age two months to five years.

General danger signs (those not syndrome-specific) include

- convulsions,
- not able to drink or feed anything,
- very sleepy or unconscious, and
- vomits everything.

Syndrome-specific danger signs include

- pneumonia:
  - › cough for 21 days or more;
  - › chest indrawing;
- dysentery:
  - › diarrhea for 14 days or more;
  - › blood in stool;
- malaria:
  - › fever for the last 7 days;
- acute severe malnutrition:
  - › red on mid-upper arm circumference band;
  - › swelling of both feet.

FIGURE 7: WHO/UNICEF SICK CHILD RECORDING FORM[113]

Sick Child Recording Form
(for community-based treatment of child age 2 months up to 5 years)

Date:_____/_____/20_____   CHW:_____
     (Day / Month / Year)

Child's name: First _____ Family _____   Age: __Years/__Months   Boy / Girl

Caregiver's name: _____   Relationship: Mother / Father / Other: _____

Address, Community: _____

1. Identify problems

ASK and LOOK	Any DANGER SIGN	SICK but NO Danger Sign?
ASK: What are the child's problems? If not reported, then ask to be sure. YES, sign present → Tick ☑ NO sign → Circle ■		
☐ ■ Cough? If yes, for how long? __ days	☐ Cough for 21 days or more	
☐ ■ Diarrhoea (3 or more loose stools in 24 hrs)? IF YES, for how long? ____days.	☐ Diarrhoea for 14 days or more	☐ Diarrhoea (less than 14 days AND no blood in stool)
☐ ■ IF DIARRHOEA, blood in stool?	☐ Blood in stool	
☐ ■ Fever (reported or now)? If yes, started ____ days ago.	☐ Fever for last 7 days or more	☐ Fever (less than 7 days) in a malaria area
☐ ■ Convulsions?	☐ Convulsions	
☐ ■ Difficulty drinking or feeding? IF YES, ☐ not able to drink or feed anything?	☐ Not able to drink or feed anything	
☐ ■ Vomiting? If yes, ☐ vomits everything?	☐ Vomits everything	
LOOK:		
☐ ■ Chest indrawing? (FOR ALL CHILDREN)	☐ Chest indrawing	
IF COUGH, count breaths in 1 minute: _____breaths per minute (bpm) ☐ ■ Fast breathing: Age 2 months up to 12 months: 50 bpm or more Age 12 months up to 5 years: 40 bpm or more		☐ Fast breathing
☐ ■ Unusually sleepy or unconscious?	☐ Unusually sleepy or unconscious	
For child 6 months up to 5 years, MUAC strap colour: red__ yellow__ green__	☐ Red on MUAC strap	☐ Yellow on MUAC strap
☐ ■ Swelling of both feet?	☐ Swelling of both feet	

2. Decide: Refer or treat child
   (tick decision)

☐ If ANY Danger Sign, refer to health facility

☐ If NO Danger Sign, treat at home and advise caregiver

GO TO PAGE 2 →

1

Child's name: _____ Age: _____

3. Refer or treat child (tick treatments given and other actions)

☐ If ANY Danger Sign, REFER URGENTLY to health facility

☐ If NO Danger Sign, treat at home and advise caregiver

If any danger sign, REFER URGENTLY to health facility:

ASSIST REFERRAL to health facility:
☐ Explain why child needs to go to health facility. GIVE FIRST DOSE OF TREATMENT:

☐ If Diarrhoea	☐ If child can drink, begin giving ORS solution right away.
☐ If Fever AND ☐ Convulsions or ☐ Unusually sleepy or unconscious or ☐ Not able to drink or feed anything ☐ Vomits everything -------------------- ☐ If Fever AND danger sign other than the 3 above	☐ Give rectal artesunate suppository (100 mg) ☐ Age 2 months up to 3 years—1 suppository ☐ Age 3 years up to 5 years—2 suppositories ------------------------ ☐ Give first dose of oral antimalarial AL. ☐ Age 2 months up to 3 years—1 tablet ☐ Age 3 years up to 5 years—2 tablets
☐ If Chest indrawing, or ☐ Fast breathing	☐ If child can drink, give first dose of oral antibiotic (amoxicillin tablet—250 mg) ☐ Age 2 months up to 12 months—1 tablet ☐ Age 12 months up to 5 years—2 tablets

☐ For any sick child who can drink, advise to give fluids and continue feeding.
☐ Advise to keep child warm, if child is NOT hot with fever.
☐ Write a referral note.
☐ Arrange transportation, and help solve other difficulties in referral.

→ FOLLOW UP child on return at least once a week until child is well.

If no danger sign, TREAT at home and ADVISE on home care:

☐ If Diarrhoea (less than 14 days AND no blood in stool)	☐ Give ORS. Help caregiver give child ORS solution in front of you until child is no longer thirsty. ☐ Give caregiver 2 ORS packets to take home. Advise to give as much as child wants, but at least 1/2 cup ORS solution after each loose stool. ☐ Give zinc supplement. Give 1 dose daily for 10 days: ☐ Age 2 months up to 6 months—1/2 tablet (total 5 tabs) ☐ Age 6 months up to 5 years—1 tablet (total 10 tabs) Help caregiver to give first dose now.
☐ If Fever (less than 7 days) in a malaria area	☐ Do a rapid diagnostic test (RDT). ___ Positive ___ Negative ☐ If RDT is positive, give oral antimalarial AL (Artemether-Lumefantrine). Give twice daily for 3 days: ☐ Age 2 months up to 3 years—1 tablet (total 6 tabs) ☐ Age 3 years up to 5 years—2 tablets (total 12 tabs) Help caregiver give first dose now. Advise to give 2nd dose after 8 hours, and to give dose twice daily for 2 more days.
☐ If Fast breathing	☐ Give oral antibiotic (amoxicillin tablet—250 mg). Give twice daily for 5 days: ☐ Age 2 months up to 12 months—1 tablet (total 10 tabs) ☐ Age 12 months up to 5 years—2 tablets (total 20 tabs) Help caregiver give first dose now.
☐ If Yellow on MUAC strap	☐ Counsel caregiver on feeding or refer the child to a supplementary feeding programme, if available
☐ For ALL children treated at home, advise on home care	☐ Advise caregiver to give more fluids and continue feeding. ☐ Advise on when to return. Go to nearest health facility immediately or if not possible return if child ☐ Cannot drink or feed ☐ Becomes sicker ☐ Has blood in the stool ☐ Advise caregiver on use of a bednet (ITN). ☐ Follow up child in 3 days (schedule appointment in item 6 below).

4. CHECK VACCINES RECEIVED
(tick ✓ vaccines completed)
Advise caregiver, if needed: WHEN and WHERE is the next vaccine to be given?

Age	Vaccine		Date given
Birth	☐ ■ BCG	☐ ■ OPV-0	
6 weeks	☐ ■ DPT—Hib + HepB 1	☐ ■ OPV-1	
10 weeks	☐ ■ DPT—Hib + HepB 2	☐ ■ OPV-2	
14 weeks	☐ ■ DPT—Hib + HepB 3	☐ ■ OPV-3	
9 months	☐ ■ Measles	[Give OPV-4, if OPV-0 not given at birth]	

5. If any OTHER PROBLEM or condition you cannot treat, refer child to health facility, write referral note.

Describe problem: _____

6. When to return for FOLLOW UP (circle): Monday Tuesday Wednesday Thursday Friday Saturday Sunday

7. Note on follow up:
☐ Child is better—continue to treat at home. Day of next follow up: _____.
☐ Child is not better—refer URGENTLY to health facility.
☐ Child has danger sign—refer URGENTLY to health facility.

2

Signs that a child is sick but can be treated at home by a CHW often include
- diarrhea less than 14 days and no blood in stool;
- fever less than seven days; and
- fast breathing: (50 + breaths per minute in children 2–12 months; 40+ breaths per minute in children 12 months–5 years).

The decisions regarding the age group targeted and the interventions to include in CCM—that is, which conditions can be treated in the community—are the first consideration in adjusting guidelines. For example, if pneumonia treatment is not integrated into CCM, then the guidelines for actions in cases of fast breathing need to be changed to referral, rather than treatment. Additional adjustments may be made in the timing of follow-up visits. Some settings call for the CHW to visit the household of the sick child the next day in cases of diarrhea, rather than three days later. Other factors to consider include financial, social, and geographic barriers to referral.

Additional adjustments in guidelines may be needed in areas where HIV prevalence is high. Although a child who is believed to have HIV can be treated the same as any child presenting with diarrhea and/or pneumonia, other issues such as cotrimoxazole prophylaxis for HIV-related infections and how to counsel mothers on food and fluids, including breastfeeding, for sick children may call for changes in guidelines. Managers and others engaged in adjusting guidelines for CCM in high HIV settings should consult *Integrated management of childhood illness for high HIV settings*[114] in the toolkit at the end of this section.

Address assessment considerations. Typically, CHWs assess children by asking the caregiver questions and observing the child. The CHW asks about these signs and symptoms.
- Cough? If yes, for how many days?
- Diarrhea? If yes, for how many days?
- If diarrhea, blood in the stool?
- Fever? If yes, how many days ago did it start?
- Convulsions?
- Difficulty drinking or feeding? If yes, not able to drink or feed anything?
- Vomiting? If yes, vomits everything?
- Any other problem?

The CHW observes
- chest indrawing;
- if cough, breaths per minute;
- very sleepy or unconscious;
- for child six months to five years, mid-upper arm circumference; and
- swelling of both feet.

Often, the only diagnostic tools a CHW uses are a stopwatch, timer, or clock (Figure 8) to time one minute when counting breaths per minute (Box 20), and

the mid-upper arm circumference band. Countries are beginning to use RTDs for malaria, accompanied by clinical assessment. Resources for guidance on the selection of RDTs as well as training CHWs in their use are listed in the toolkit.

BOX 20: TIMING DEVICES FOR COUNTING RESPIRATORY RATES

A wall clock, wristwatch, stopwatch, and the UNICEF respiratory counter are all devices a CHW can use in accurately counting the number of breaths per minute in a sick child with suspected pneumonia. Managers should take into account the following considerations when making decisions about which device is most appropriate for a particular setting. The currently available UNICEF timer may be costly, due to minimum order requirements. In addition, it has been found to have a short life span—approximately one year. The device has to be stored in a cool dry place to ensure maximum battery life (ideally under refrigeration in hot, humid climates), the batteries are not replaceable, and there is no low battery indicator, so the device may suddenly "die."[115] The age of the CHW also affects the acceptability of a timing device. Elderly CHWs often prefer big wall clocks, because they are easier to see. Adult CHWs tend to like wristwatches with second hands, and younger CHWs appreciate devices with digital readouts.

Adjustments in case management guidelines and tools may be required when
- the disease epidemiology changes; for example, due to widespread use of insecticide-treated bed nets for malaria prevention or *Haemophilus influenzae* type b (Hib) vaccine for pneumonia prevention;
- the medicine of choice recommendation changes;
- the medicine formulation changes;
- the targeted age group enlarges; or
- the assessment or diagnostic tools change, for example RDTs become widely available or a new respiratory time is introduced.

FIGURE 8: CHW USES TIMER TO COUNT BREATHS PER MINUTE AND ASSESS FOR PNEUMONIA

Source: *Wansi E, Swedberg E*

Select first-line medicines based on policy and financial and supply-chain realities. Medicines and supplies used in CCM should be consistent with the national IMCI guidelines, the essential medicines list, and other medicine regulations. This contributes to sustainability and continuity in CHW training and practice, as well as to containing antimicrobial resistance. In addition to national guidelines, managers should consult current policy guidelines on medicines and other treatments used in CCM (see this section's toolkit). For example, WHO recommends that all countries experiencing resistance to treatments such as chloroquine, amodiaquine, or sulfadoxine-pyrimethamine should use combination therapies, preferably those containing artemisinin derivatives (also known as artemisinin-based combination therapies or ACTs) for *P. falciparum* malaria.[116] Other issues to consider in the selection of treatments include financing for treatments and strengths and weaknesses in the supply chain.

The medicines selected for CCM vary from country to country. For example, a program in Sierra Leone uses cotrimoxazole for treatment of pneumonia, while a program in South Sudan uses amoxicillin. Similarly, as countries introduce different ACTs for malaria treatment, the antimalarials used in CCM for malaria change over time. Table 11 outlines medications often used in CCM. Another issue to consider is the formulation of the medication, e.g., tablets or syrups (Table 12).

TABLE 11: MEDICINES COMMONLY USED IN CCM

MEDICINE	FOR	FREQUENCY	DOSE 2–12 MONTHS	DOSE 13 MONTHS–5 YEARS	COMMENTS
Cotrimoxazole	Pneumonia	Twice a day for 3 days in low-HIV settings; 5 days' treatment in high-HIV settings	240 mg	480 mg	
Amoxicillin	Pneumonia	Three times a day for 3 to 5 days	125 mg	250 mg	
ORS	Diarrhea	After each loose stool	50–100 ml	100–200 ml	
Zinc	Diarrhea	Daily for 10–14 days	**Under 6 months** 10 mg	**Over 6 months** 20 mg	

Medicine	For	Frequency	Dose 2–12 months	Dose 13 months–5 years	Comments
Coartem™	Malaria	At 0, 8, and 24 hours, then every 12 hours for a further 3 doses	**2–36 months** 120 mg	**36 months– 5 years** 240 mg	Store under 30°C but more sensitive than other medicines. Short shelf life 1–2 years
AS+AQ artesunate + amodiaquine combination (Currently available as separate scored tablets: 50 mg of artesunate and 153 mg base of amodiaquine, respectively. Coformulated tablets under development)	Malaria	Once a day for three days	25 mg (1/2 tablet) artesunate 5–11 months; 76 mg (1/2 tablet) amodiaquine 5–11 months	50 mg (1 tablet) artesunate 1–6 years; 153 mg (1 tablet) amodiaquine 1–6 years	

TABLE 12: FORMULATION ISSUES TO CONSIDER FOR MEDICINES FOR CCM

	TABLETS	SYRUPS
Storage requirements	Easy to transport and store	Bottles breakable Heavier to transport
Ease of use	Pediatric tablets accurate dosing If adult tablets are used, halving can be inaccurate	Dose measuring can be inaccurate if oral syringes are not used correctly
Cost	Less expensive	More expensive

Establishing CHWs

The best CCM upgrades the skills of existing cadres of health workers in delivering curative interventions and linking to health facilities. CHWs may already be present in the areas where the selection process is taking place. Some may be currently working in communities, and others may have experience in programs that ended. An advantage of using existing CHWs is that they are known to the community and often have demonstrated their commitment. They may also have received relevant training in the past. The ideal CHW for CCM is often a CHW involved in C-IMCI who is not yet trained in assessing, classifying, and treating illness. Training for CHWs in CCM is discussed in detail in Section V, "Increasing the Quality of CCM."

Using existing CHWs has advantages, but overloading them with responsibilities may decrease quality. Caution must also be taken, as existing CHWs may already be very busy. The increased workload required by CCM may make it difficult to ensure that they can perform CCM and other functions well. This is particularly true for volunteer CHWs, who have many other responsibilities, but it also applies to salaried CHWs (Box 21).

> **BOX 21: ADVICE FROM PAKISTAN: DO NOT OVERBURDEN THE WORKER[117]**
>
> Launched in 1993–1994, the Lady Health Worker (LHW) program of the MOH of Pakistan trained and employed 98,000 of these CHWs by 2005 to provide integrated health care services at families' doorsteps. In addition to CCM of diarrhea, pneumonia, and malaria, the LHWs also provide family planning services. They organize the community, provide health education, and coordinate with traditional birth attendants (TBAs) and the health facility for maternal and newborn health. The program has high political commitment and has brought about increases in knowledge as well as improved household practices and care-seeking. Its success has not been overlooked. Many other initiatives—from national polio day campaigns to the delivery of injectable contraceptives in the household—seek to build on it. Concerned that the program may lose focus and dilute its impact if LHWs take on additional responsiblities, managers are careful to conduct thorough reviews before introducing new interventions.

Using existing private providers also has potential benefits and pitfalls. Private providers—from medicine sellers to traditional healers—exist in most settings where CCM is appropriate. Traditional care-seeking patterns in the program area may suggest that private providers are the right candidates to be CCM workers. For example, if community members initially seek care from traditional healers for a large part of illness episodes, including healers as CCM providers may make CCM services more sustainable, because established patterns of care-seeking will not be altered. Some private providers may already have some training in health. They often demonstrate interest in expanding their services, and they are less likely to undermine the program if they are included in it. Private providers, like all CHWs, require training and supervision.

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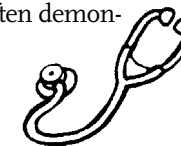
Box 22: IMCI in Accredited Drug Dispensing Outlets (ADDOs) in Tanzania[118]

Government health facilities are families' first choice for treating many childhood illnesses in Tanzania. However, because access to facilities is limited and stock-outs of essential medicines occur frequently, most caregivers seek medical care for children from the private sector, including small shops that sell medicines and other goods. In 2003 the Tanzania Food and Drug Authority of the Ministry of Health and Social Welfare (MOHSW), in collaboration with Management Sciences for Health, began a program to transform these shops into a network of Accredited Drug Dispensing Outlets (ADDOs). After extensive training for both shop owners and dispensers, the ADDOs sell essential medicines in rural and urban areas. Recognizing that ADDOs are an important source of medicine for children under five, the MOHSW decided to introduce "IMCI in the ADDOs." This child health component consists of a package of interventions including: training dispensers in rational use of medicines for treatment of malaria, pneumonia, and diarrhea; community mobilization activities; supervision, monitoring, and evaluation; and a formal referral system between the ADDOs and health facilities.

However, there are disadvantages to using private providers. Their services are usually their source of income. They may be unwilling to participate in a program that provides medicines for free or at very low cost, and charging more would exclude the poorest community members from CCM services. Often they are unlicensed or subject to very little, if any, oversight; they may not welcome supervision and monitoring. Private providers may also have incentives to treat inappropriately. For example, in some countries, parents are willing to pay more for an injection than for tablets. Private providers may not fit the profile in other ways. For example, a program may be looking for a balance of women and men as CHWs and for providers who stay in their communities; "pill sellers" in the area may be primarily male and travel frequently.

Where using private providers as CHWs entails trade-offs between the ease of establishing them, the potential loss of control over activities, and possibly the quality of the services provided, some programs opt to include them as referral sources for CCM.

Literacy requirements may exclude women as CHWs and obstruct access.
Some programs using CCM require CHWs to be literate. Literate CHWs may be able to complete reporting forms more easily and use a wider variety of training and support materials. However, there are strong arguments for using community members who are not literate as CHWs. Literacy requirements in areas where female literacy is low tend to produce gender imbalances in the CHW cadre, with many more men than women, as shown in Figure 9. In Sierra Leone, literacy was a requirement to be a CHW—all trainees were literate, and all passed the training, but this approach yielded only 20% female CHWs. In South Sudan, literacy was not required. Only 4% of the trainees were literate, but 94% still passed the training; 81% of the CHWs were women. In the Sierra Leone program, many of the men worked during the day in the mines and were not available to the community. There

was a high turnover as the more educated volunteers moved out of the community. The program now trains illiterate CHWs, including many more women. Retention has improved.[119] In South Sudan, community leaders initially rejected the idea that women could be CHWs. Program staff from the same ethnic group insisted on considering women as candidates. Community members, including leaders, now widely acknowledge that women providers perform well.[120]

Figure 9: The impact of literacy requirements on gender balance among CHWs
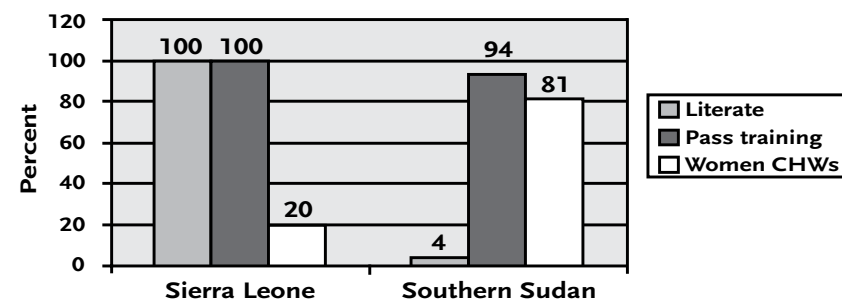
Illiterate providers are generally less likely to travel away from their communities in search of employment. Retention of these workers in some countries is very high. Moreover, caregivers, who in most cultures are more likely to be women, may feel more comfortable approaching female CHWs.

Numerous CCM programs have demonstrated that CHWs who are not literate can perform well, memorizing guidelines, providing quality care, and giving accurate reports. For example, illiterate Female Community Health Volunteers (FCHVs) in Nepal perform CCM of pneumonia and diarrhea about as well as literate volunteers.[121] Such programs adapt reporting forms using pictograms and check-off systems. Training involves practical case examples, which is essential for literate trainees as well. Many program adaptations made for illiterate providers help even literate providers perform better, because they are simpler, more visual, and less prone to misinterpretation.

Box 23: More reasons for women as CHWs[122]

The following rationale is based on the program experiences of the International Rescue Committee with male and female CHWs. They are not meant be generalizations and may not apply in all contexts.
- Women travel less than men.
- Women are less likely to be alcoholic or violent.
- Women are less likely to assume the role of CHW hoping, despite clear statements to the contrary, that it will become paid employment.
- Women are less likely to misuse medicines for purposes other than CCM.
- In some of the best-established, "state of the art" community health projects, such as the one in Matlab, Bangladesh, all CHWs are women.

- Motivation and regular presence in the community are far more important human resource concerns than literacy.
- Without active promotion of women as CHWs, many communities select mostly or all men. Programs using CCM have the responsibility to foster gender equity. Communities often agree to choose more or all women as CHWs when a strong case, including the arguments above, is made.

CCM generally works best when CHWs are ultimately accountable to their communities. Although CHWs may work for the program with CCM, they are ultimately accountable to their communities. Managers, facility-based providers, and community members need to understand this. Accountability means that the community is responsible for ensuring that the CHWs perform well and have its support. Program managers and supervisors have similar responsibilities, but their responsibility is second to that of the community. Accountability to the community is closely linked to community competency and sustainability. Activities to strengthen community capacity to manage CCM (see Section III, "Enabling a Supportive Social and Policy Environment") are best accomplished when the right of communities to negotiate and control their roles in achieving improved child health, in partnership with other stakeholders, is recognized. Transparency and feedback to the community, after a CHW is trained and returns to the community, are essential.

Anticipate the need to replace CHWs. Inevitably some CHWs resign, some leave the area, and others lose interest in performing their duties. A careful selection process, a strong motivation plan, and effective management keep attrition in check, but it is unlikely to be eliminated altogether. A small number of CHW departures can be beneficial, as less motivated CHWs give way to more appropriate ones. CHW selection is an ongoing or regular process, requiring a budget for training and related expenses to replace any providers who leave their posts.

Overview of steps in selecting CHWs. The actual selection of CHWs is the last step in the selection process.
- Approach communities to explain the program and ensure their participation in the selection process. This can take weeks or months (see Section III, "Enabling a Supportive Social and Policy Environment").
- Create a job description and clarify what is expected of community providers. This can usually be done in days or weeks.
- Develop a motivation plan to maintain CHW commitment to the program.
- Work with communities to select the CHWs. This process will usually take at least a month.

Strive for balance between technical and ethical requirements, on one hand, and community needs and desires, on the other, in selecting CHWs. Managing the process of selecting CHWs varies widely according to cultural norms and standard national and/or district guidelines, but some basic principles apply in almost every situation.

- Engage the community in determining selection criteria. This can avoid potential negative consequences for program performance and CHW presence, such as the village chief's choosing his close relatives as CHWs.
- Explain at the outset selection criteria.
- Ensure that as many people as possible witness the process.
- Use a transparent selection mechanism, whether a vote or simply making sure that many people, men and women, young and old, have the chance to speak.
- Work with an intermediary who is familiar with the community, can assist in pointing out irregularities, and help in finding a balance between technical and ethical requirements, on the one hand, and community needs and desires, on the other.

Box 24: Selection process and criteria for CHWs in Rwanda[123]

The community nominates potential *distributeurs* (the CHWs in the Rwanda program) based on criteria including integrity, hard working, personal cleanliness, self-respect, and disinclination to drink in excess. Following nomination, community members vote by standing "in line" behind the candidate they think could do the best job. A midterm assessment found that communities were satisfied with the election process, even in those places where not all members, especially children's direct caregivers, participated actively.

Create a job description. A clear and specific CHW job description is a foundation of CCM.

Involve stakeholders in writing the job description. There are many benefits to including stakeholders. Engaging community members, particularly community management structures and the CHWs themselves, in the design of a job description can make it more culturally appropriate. National and district officials from the MOH or other entities can ensure that the job description contributes to national objectives and aligns with job descriptions in other CHW programs. Technical advisors can provide templates from successful programs elsewhere as well as a wider perspective informed by research and best practices.

In practice, a program may have to strike a balance between local participation and standardization. For example, it may be best to have a template with suggested measurable outputs but work with stakeholders to adapt it and encourage CHWs to write their own code of conduct (see Box 27). In programs working in more than one district, the job description (perhaps other than the code of conduct) is often the same for all CHWs.

Answer questions about objectives, competencies to achieve them, and CHW satisfaction. To create a job description, including performance objectives, answer the following questions.
- What characteristics should a CHW have? A brief profile (criteria for selection) of the kind of person the program hopes to attract might include attitude,

standing in the community, past record of community contribution, and perhaps level of education and previous experience in health (see Box 25).

- What specific tasks should the CHW be able to accomplish correctly? These are often called "core competencies" (see Box 26). Identifying tasks in as much detail as possible facilitates the design of training, supervision, and monitoring systems. Tasks should be linked to desired program results.
- How will CHW performance and achievements be measured?
- What are the conditions of the work? This includes the place of residence, estimated hours per day or week, "workplace" (e.g., from home, from health hut), and incentives.

BOX 25: EXAMPLE OF A PROFILE OF A CHW INCLUDED IN A JOB DESCRIPTION

- Must be elected by the community
- Should be a well-respected member of the community, with a good reputation
- Honest, friendly, and willing to open his/her door at night to help sick children
- Able to come for the initial five-day training and monthly refresher training
- Willing to be supervised at home and attend a monthly coordination meeting at the health center
- Must live in the community and travel infrequently

BOX 26: EXAMPLES OF CORE COMPETENCIES OF CHWs

- Identify the sick child (name, age, and other information) and complete recording form.
- Assess danger signs, illness signs, and signs of other problems the CHW cannot manage.
- Count respiratory rate.
- Classify the child.
- Treat the child with the correct medicine, dose, and duration.
- Give the first dose.
- Counsel the caregiver on medicine administration.
- Use counseling cards and mothers' reminder materials to counsel the caregiver on medication administration and other key household behaviors.
- Probe the caregiver for questions and ask her or him to repeat instructions.
- Arrange for follow-up visit.
- Refer children with danger signs.
- Facilitate referrals.
- Complete patient registers.
- Make follow-up visits.
- Maintain medicine stock records and store medicines correctly.

Develop rules of conduct for the CHWs. Ideally the CHWs identify the norms and standards for their actions as part of their training. Box 27 is an example of a code of conduct developed by CHWs in South Sudan.

BOX 27: EXAMPLE OF A CHW CODE OF CONDUCT

- Be committed to serving the people who selected us.
- Avoid alcohol during the time one is a community provider.
- Do not use the services to make friends or create enemies.
- Do not ask for favors or monetary gifts from the community as trade for services.
- Do not perform services beyond what we are assigned.
- See and treat cases as prescribed by guidelines.
- Avoid arguing and quarreling when a mother brings a child.
- Be attentive to the needs of the community.
- Inform the community members if you have to travel outside the community.
- Never give any medicine to a mother if the child is not with her.
- Always keeps community members' information confidential.
- Be gentle and attentive.

Prepare a performance contract. The job description can be the basis for a performance contract signed with each CHW or each community. The contract is useful not only in establishing performance objectives, but also in clarifying the role and obligations of the various stakeholders—the community, the health facility, managers, etc. Box 28 is an example of a performance contract.

BOX 28: EXAMPLE OF A CHW CONTRACT

I, _____agree to accept my position as a CHW. I wish to be trained as a CHW and serve my community following the training. I shall diligently serve my community in treating children under five years old for diarrhea, malaria, and pneumonia with the medicines provided by the program. I agree that the nurse from the health center at _____ will supervise me, and I will report on my activities to the community and to the program.

CHW signature	Community leader signature	Health center manager signature	District MOH or other program staff signature
_____	_____	_____	_____
Date	Date	Date	Date
___/___/_____	___/___/_____	___/___/_____	___/___/_____

Consider multiple sources of motivation for CHWs in developing a motivation plan. The activities and responsibilities in the job description should add up to a satisfying and motivating role for CHWs. The principle sources of job satisfaction are the following.[124]

- The work itself is focused, with direction, support, and accountability.
- The person doing the work grows on the job, feels valued, and has a sense of ownership.
- The work environment is harmonious and collaborative.

> **BOX 29: WHAT MOTIVATES CHWs IN RWANDA?[123]**
>
> *Distributeurs*, the CHWs who provide treatment for malaria in communities, ask for three kinds of incentives, none of them wages or salary:
> - continuing education, such as refresher training, journals, training in other topics, or radios to follow educational programs;
> - essential tools for performance of their duties, including rain boots, umbrellas, bags, bicycles, torches, kerosene, or compensation for transport; and
> - nonmonetary compensation, particularly exemption from other duties in the community (e.g., community patrol, cleaning day) and enrollment in the *mutuelle*, a community prepayment health insurance scheme.

Satisfaction is closely linked to motivation. CCM initiatives must find a way to motivate CHWs as well as the people who supervise and support them. Although motivation is often associated with financial incentives, the importance of financial motivation is oven overestimated to the neglect of other effective motivational factors. Motivation is also linked to sustainability: motivated CHWs and other personnel are less likely to leave a program.

FIGURE 10: SOURCES OF MOTIVATION
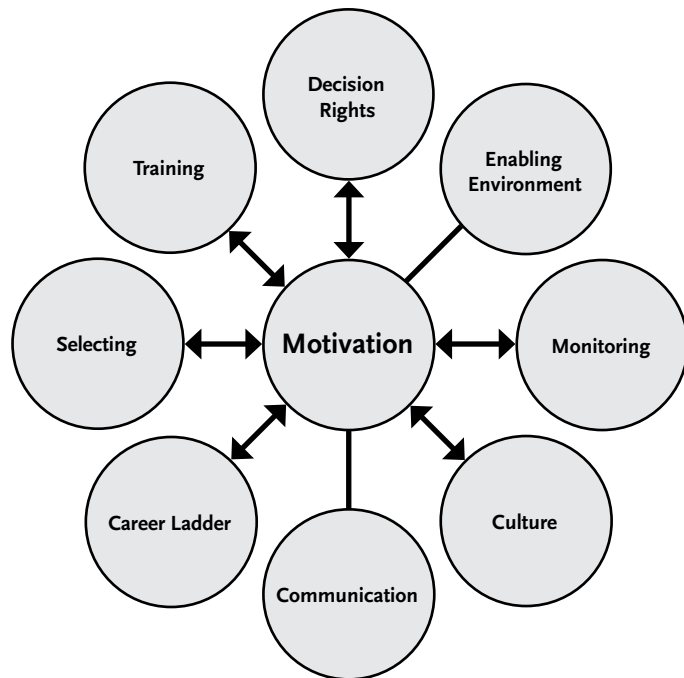
A motivation plan considers multiple sources of motivation in addition to financial incentives, as illustrated in Figure 10. The plan outlines ways to encourage CHWs and explains how to sustain each strategy. Supervisors, facility-based providers, and other program staff also need motivation plans.

Selecting the right people. Motivation works best if the program succeeds in selecting individuals who are interested in CCM work and willing to give to their communities. Community members are best placed to identify individuals with these qualities. A community management structure can be a helpful point of contact for resolving conflicts arising out of a CHW's work with difficult households, such as those that refuse to observe a CHW's recommendation to refer a child with danger signs. Village health committee members, who are highly respected in the community, can quickly intervene on behalf of the CHW in such cases.

Training has a major impact on motivation. CHWs appreciate being trained in a practical skill with social value, such as giving lifesaving medicine to young children. Regular in-service training, whether in classrooms or on the job, fosters a sense of self-improvement. CHWs may also receive periodic rewards in the form of small payments to reimburse the costs of transport to training sessions. Section V, "Increasing the Quality of CCM," describes training issues in more detail.

Decision rights. Allocating decision rights means delegating decisions to workers at all levels of the system, including CHWs. Human resource experts note that the ability to make meaningful decisions is an important component of job satisfaction. Managers should clearly communicate the decisions that CHWs can make (e.g., which children need treatment) and which decisions they cannot make (e.g., whether to try a second course of treatment for a child who failed the first one). Decision-making authority varies from one context to another, but in all cases CHWs and other providers should be involved in decisions not only about clinical care, but also about how they work.

An enabling environment for motivation includes ensuring proper supplies for CHWs and community management structures that support CHWs. The lack of proper tools to perform job requirements diminishes motivation. In all cases, CHWs need medicines, record-keeping instruments, and educational materials. Other supplies that provide motivation can vary considerably, and it is often not possible to satisfy every request. CHWs sometimes make hopeful requests, on the assumption that it does not hurt to ask. However, as long as some of the other motivational factors are present, they usually do not become discouraged when supervisors explain why the request cannot be honored. Many programs give CHWs items such as raingear, flashlights, a badge, T-shirts, caps, soap, binders, and carrying bags. In areas where CHWs have to travel long distances or where the clients' homes are hard to reach, some programs provide transportation such as bicycles.

Monitoring and supervision are closely related to communication and motivation. For managers and supervisors, monitoring means knowing which providers are working well and which need more help. For the providers, monitoring means that their work is recognized and having a measurable impact. This sense of recognition and impact has been repeatedly demonstrated to be a top source of motivation.[125]

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Leadership by program managers and regular supervision are also effective motivators. CHWs also appreciate well-designed reporting systems that are not cumbersome and allow them to see the difference they make in the community.

Culture, although less tangible, offers many opportunities to motivate. Examples include a strong village identity, service to one's country, and belonging to a particular faith. Managers also need to ensure that the culture does not systematically exclude some community members, either as CHWs or as people in need of care.

Communication motivates in several ways. Giving reports satisfies the need to have one's work noted and recorded, while getting feedback on the reports gives providers and supervisors a sense of the impact of their work. Most important, regular communication, whether through report sharing, feedback, routine supervision, or monthly meetings, fulfills the human need for interaction and teamwork. Frequent social interaction among CHWs—another form of communication—also motivates.

A career ladder, or a promotional path within the program that begins by the eventual use of stronger CHWs as supervisors, instead of exclusively nurses and higher level professionals, is uncommon in programs with CCM. However, examples exist in Bangladesh, Pakistan, and even the United States. Training CHWs "up" to be supervisors can lead to the point (for those who wish) where local nursing schools create opportunities for formal education for CHWs. Other "career opportunities" for CHWs with the skills, experience, and willingness could be CHWs as mentors for new CHWs, as cofacilitators of training, or as another cadre of health worker, such as health aide.

> **Box 30: The CHW career ladder in Senegal**
>
> The MOH recruits nursing aids and other health assistants for health posts and centers from among CHWs. In one district, the district health officer rewards the two highest-performing CHWs each year with full scholarships for professional training. The private sector also looks to CHWs as a source of nursing and pharmacy assistants as do NGOs seeking peer-to-peer supervisors. Nevertheless, managers should bear in mind two points of caution: (1) the promotion of volunteers to paid government posts may be subject to interference by local elected officials seeking to use the selection as a reward for support; and (2) some communities are left without a functioning health service delivery point after their former CHW moves to the MOH, private, or NGO systems.

To pay or not to pay? Avoid financial incentives to CHWs unless there is a financial and institutional commitment from a permanently established organization.[92] CCM sometimes uses regular financial incentives to pay CHWs—most often when the CHWs work directly for the government. The advantages of monetary incentives may include speedier recruitment of community workers, popularity with communities, and the ability of a program to make substantial

demands on CHWs' time. The International Centre for Diarrhoeal Disease Research, Bangladesh, for example, has effective CCM and pays regular incentives to its CHWs as does the Lady Health Worker (LHW) program in Pakistan.

Financial incentives also have drawbacks. Payments may attract individuals who are more interested in generating income than in serving their communities, resulting in lower quality of care. These payments are often not sustainable and add substantially to the cost of a program. For example, a payment of US$ 4 a month to CHWs in an area of 20,000 households, with each provider covering 30 households, would cost about US$ 32,000 a year. Financial incentives can also reduce accountability to the community: CHWs become employees of the program, not volunteers representing and accountable to the community. Other forms of financial motivation, such as small profits from medicine sales, may also have drawbacks: they may limit access for the poorest members of the community. If used, financial incentives require significant monitoring to ensure that these biases do not distort the objective and goal of CCM.

In the absence of a credible financial and organizational commitment from a permanently established organization, such as the government or a research institute, programs should avoid financial incentives to CHWs. A creative and comprehensive motivation plan for CHWs is more sustainable and often equally rewarding for them.

> **Box 31: Learning from experiences with financial incentives for CHWs**
>
> In **Benin**, the long-established guinea worm eradication program set the precedent of providing financial compensation to CHWs. When newer integrated programs such as C-IMCI started, the CHWs associated with these programs expected similar payments.[126]
>
> In **Cameroon**, a community health program supported by an NGO began with financial incentives for CHWs. But, when the NGO departed, these could not be maintained. CHW involvement decreased, but the health problems remained.[127]
>
> In **Mali**, NGOs did not have a uniform approach to incentives for CHWs. Some provided supplies and bicycles. Others paid CHWs as well. CHWs in the "lesser compensated" programs either asked for greater incentives or left to work with programs that paid or offered more incentives. Eventually, the MOH and NGOs created an incentive scale to standardize incentives.[128]
>
> In **Mozambique**, CHWs in NGO programs did not receive monetary compensation. Instead the programs provided regular training and other forms of incentives. When the NGOs left, the number of active CHWs went from 4,000 to 1,000, and, without supervision, the CHWs starting selling subsidized medicines from the health posts. In 2008, the government began to develop a strategy to provide salaries and new training for these workers and planned to train 2,250 by 2010.[129]

Ensuring medicines and supplies for CCM

There can be no CCM without a constant supply of medicines to treat each of the childhood illnesses. Without an uninterrupted supply of medicines to treat childhood illnesses at sites outside health facilities, CCM cannot succeed.

Avoid establishing parallel or "stand alone" procurement and supply systems, as they are rarely sustainable. Sometimes weaknesses in existing logistics management systems or policies that limit the selection of medicines for CCM suggest that an alternative to the national or district system is needed to carry out CCM. Although such parallel systems may overcome limitations on a small scale, they usually cannot be replicated on a larger scale or be sustained once a project ends. Taking time to address weaknesses in existing systems contributes to sustainability: the upgraded structures remain long after a project has ended.[85]

Overview of steps to effectively manage medicines and supplies at the district and community level. Once the front-line medications for CCM have been selected, the steps outlined in Table 13 can help to effectively manage medicines and supplies for CCM. These steps are typically applicable for district-level management, but depending on the country and the program, some may occur at the national or regional levels of the MOH, rather than at the district level.

TABLE 13: STEPS IN MANAGING MEDICINES AND SUPPLIES

STEP	ACTIVITY/ACTION
Procurement	• Estimate the quantities of the medicines and supplies that the program will need. • Decide how the program will finance the medicines and supplies. • Determine how the medicines and supplies will be obtained or purchased.
Distribution and storage	• Establish how the CHWs will receive the products needed. • Plan for packaging and labeling. • Set procedures to maintain quality of products once they are in the CCM system. • Monitor stocks of medicines and supplies at different levels of the system.
Record keeping	• Develop record-keeping systems and tools.
Use	• Ensure rational use of medicines.

Estimate the quantities of the medicines and supplies needed. To ensure the consistent availability of medicines, managers must assess current and future needs accurately, within the context of the overall national child health plan or program. In most cases MOH staff at the national level is responsible for projecting needs as part of the national pharmaceuticals procurement process. Medicines and supplies for CCM are procured using the same process followed for medicines for all health facilities.

How to estimate quantities of medicines and supplies

The process of estimating how much a program requires for a specific period of time, called quantification, involves using past information, such as district health and population statistics, and estimated use rates, to anticipate future needs for the program.
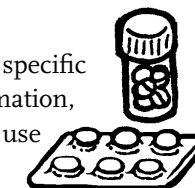
Information needed to estimate needs using available data includes
- population and other demographic data for the program target area,
- cases treated at health facilities (use rates),
- actual or predicted incidence of CCM-treatable illnesses, and
- standard treatments and the amount of medicine required for a full course of treatment.

Before CCM is launched, managers, in collaboration with their counterparts at the central level, estimate the amount of medicines based on incidence or morbidity data: the actual or estimated number of cases of the specific conditions targeted by CCM in the catchment area in one year. Districts may have data on the estimated number of cases, although in some instances national estimates are the only information available. When possible, morbidity data should be obtained from the facilities closest to the communities where CCM will take place. However, the number of cases in health facilities usually represents only a portion of the actual cases in the entire target population, since CCM intends to reach the children who do not have access to health facilities. Thus, data require adjustments based on any additional knowledge or evidence of morbidity in the particular program area of interest (e.g., child health research studies, household surveys, and assessments).

Take into account the increased use of medicines through CCM. In most settings, use of CCM is likely to be considerably higher than use of case management at facilities. Some programs using CCM have increased use of medicines by five to ten times in the catchment area for the conditions targeted.

Factor in an additional 10% as a safety stock to prevent shortages of supplies, if new supplies are delayed, or if there is a sudden, unexpected increase in demand.

Multiply the number of children per age group to be treated by the number of tablets (or other formulations) in a treatment course. This yields the quantity of medicines required.

Adjust calculations as the program progresses. When the program is new, the initial estimate should be reviewed periodically and, if necessary, revised to ensure that the quantity of medicines procured meets the need of the program as it becomes established and expands. After a program begins, consumption of medicines—the number of doses or units of each medicine the CHW dispenses in a

community over a specific period of time—is the most important information for estimating the quantity required. CHWs and their supervisors are responsible for recording and collecting dispensing data and forwarding them to the managers.

Other considerations in calculating and revising quantities needed include
- stage of the program: starting out or scaling up;
- increased demand as the community uses CCM more; and
- seasonality: increases or decreases in the incidence of certain illnesses at certain times during the year.

Box 32: Examples of supplies needed for CCM

- timers or watches for measuring respiratory rates (see also Box 20)
- materials to demonstrate preparation of ORS (spoons, jugs, or liter measures)
- cups and drinking water for administering the first dose
- armbands to assess for malnutrition
- rapid diagnostic tests (RDTs) for malaria

Decide how the medicines and supplies for CCM will be financed: consider sustainability now. The sustainability of financing to ensure long-term provision of medicines for CCM should be considered early in its development. Ideally, the MOH procurement system finances medicines for CCM, even if this includes a financial contribution by development partners and NGOs. However, there may not be a sufficient government subsidy—or the guarantee of continual contributions from partners—to make the medicine supply function smoothly and efficiently at start-up or well beyond the life of a project. In such a situation, cost-recovery mechanisms—income from charges to clients—should be considered. A pilot or demonstration project offers an opportunity to test both the functioning of a cost-recovery scheme as well as its effects on demand for and use of CCM. Where national or perhaps district policy favors or permits patients' direct contributions to the costs of medicines, there may be few objections to such an approach. Even when policy states that patients should receive medicines free of charge, it may be possible to negotiate a trial of a cost-recovery mechanism.

RMFs are a very popular mechanism for sustainable financing in CCM. RMFs are commonly associated with health facilities, especially since the Bamako Initiative,[130] but they can be used in CCM. Whether associated with a facility or CCM, the principles of an RMF remain the same. The points outlined here apply with very little modification to almost any form of cost recovery. There are many different forms of RMF, but their common element is that fees are charged for medicines dispensed.[131]

Consider the arguments for and against establishing a RMF.[132] In brief, supporters say that RMFs can
- raise substantial revenue;
- improve medicine availability and quality of care;

- promote equity by making medicines more accessible to the poor, while charging those who can afford to pay;
- reinforce decentralization through local control of resources; and
- encourage efficiency in medicine management and medicine use.

Those who argue against them say
- collection costs may exceed revenue collected,
- there may be no improvement in medicine availability and other quality measures,
- user charges are a form of "sick tax" that substitutes for public spending,
- people are dissuaded from seeking essential health care, and
- incentives are created for overprescribing.

RMFs are often designed so that the income generated only covers ongoing medicine expenditures and is not sufficient to cover other recurrent program costs (e.g., supervision, training, etc.). If this is the case, other income sources are necessary to reach a point of full financial equilibrium.

Answer key questions once the decision to establish an RMF is made. The answers to these questions inform the process of designing an RMF.

1. What is the cost-recovery objective of the RMF?

In progressively more ambitious steps, the objective may be
- partial recovery of medicine costs,
- full recovery of medicine costs (including shipping, etc.),
- full recovery of medicine costs + some local operating costs, and
- full recovery of medicine costs + all local operating costs ("full cost recovery").

There is a natural tension between the public health objective of CCM (i.e., to increase access to curative services) and the financial objective of the RMF (i.e., to be as financially self-sufficient as possible). Ideally, there will be other potential sources of income so that the RMF does not have to bear all the burden of making a program financially sustainable ("full cost recovery").

2. What will be the parameters of cost recovery, if any?

More specifically:
- Will there be any exemptions for charges (e.g., by disease state, by type of medicine/supply, by economic level of client)?
- If there will be exemptions, how will this be implemented and monitored? In non-CCM programs where medicines/supplies for family planning, tuberculosis, and other diseases are included, exemptions from payment might run as high as 30 to 50% of all medicine expenses. If there will be exemptions, this certainly must be accounted for in calculating the balance sheet.

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3. What are the start-up financing requirements?

In order to remain solvent, the RMF needs sufficient start-up funds. An example of a calculation of funds needed is shown below. It takes into account the amount of money to purchase the initial round of medicines for all CHWs (calculation 1) and the amount of money for the "pipeline," i.e., the medicines in local warehouses and (if the RMF is large enough) in the central supply (calculation 2). Step 2 assumes three levels of stock—central supply, district, and CHW. This should be adjusted according to the context. For Step 1, separate calculations by medicine, by high/low volume CHWs, etc. can be done.

Calculation of starting capital needed to make an RMF successfully revolve[132]

1. **Calculation of expected monthly sales volume**

Average number of patients per month per CHW	20
Average cost per medicine item	US$ 0.20
Average items per patient	2
Average monthly sales per CHW	US$ 8.00
Number of CHWs	1,000
Total monthly sales	US$ 8,000

2. **Pipeline calculation (i.e., number of months of initial stock needed)**

	Number of months
Central purchase pipeline (time from order to delivery)	2
Central supply safety stock (prevents stock-outs)	3
Central supply working stock	2
Central supply cash on hand	2
District safety stock	2
District working stock	1
District cash on hand	1
CHW safety stock	1
CHW working stock	0.5
CHW cash on hand	0.5
Total months of pipeline	15

Cash needs for initial capitalization of RMF = $US 8,000 x 15 = $US 120,000

Avoid these pitfalls[132]

- unanticipated increases in procurement cost due to inflation or changes in exchange rate;
- underestimation of the capitalization costs of the supply system;
- rapid program expansion for which additional funds are not made available;
- unanticipated losses through theft, deterioration, or expiry;
- high operating costs that exceed budgeted amounts;
- prices set too low for intended level of cost recovery;
- too many exemptions for which there is not income from another source;
- funds tied up in national banking system or ministry accounting systems;
- delays in collecting subsidies or income from other sources;
- foreign exchange limitations that restrict international purchases for resupply;
- failure to develop secure systems for CHWs' handling of money: training, supervision, monitoring, etc.

Define how the medicines and supplies will be purchased or obtained. Medicines and supplies can be obtained from private or public suppliers, manufacturers, or agencies such as UNICEF and WHO. For most CCM efforts, the MOH at the central level, not the district health office, does procurement. Ensuring that the medicines and supplies for CCM are consistent with those selected—in strength and formulation—and are of good quality is critical.

> **TIP**
> **Introduce cost-recovery mechanisms at the start of a program**
> CHWs lose credibility and community members become dissatisfied when fees are charged for medicines or other services that were previously given free of charge. This can have negative consequences for use of CCM services.

> **Box 33: Why to procure medicines as planned according to specifications**
>
> An example of the problems that can arise when procurement fails to respect decisions about the selection of medicines comes from an unnamed country. This program selected cotrimoxazole 480mg (adult tablets) as the medicine to be used to treat pneumonia in children under five in its CCM program. The widespread availability of this form of medicine in the health system led to this decision. However, a partner organization provided the initial stock in the form of pediatric tablets (120mg), rather than in the dose decided on during planning. This caused several problems. The CHWs had been trained to use adult tablets and to break them appropriately to give the correct dose. In addition, subsequent resupply would be through the MOH system, where only 480mg tablets were available. Managers had to find a way to exchange with hospitals in the region the pediatric tablets for adult tablets before distributing medicines to the CHWs.

Donations. In some programs, the medicines and supplies are donated. Suggested guidelines to facilitate appropriate donations and avoid receiving medicines that are not needed or that have expired include the following.
- The medicine is relevant and appropriate to the needs of the program and based on the national essential medicine list.
- The choice and formulation of the medicine is appropriate for the program.
- The medicine is labeled in a language that is understandable, with instructions for use.

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- The medicines are not close to expiry (within a year, for example).
- The customs tax and the process to clear customs are not burdensome (if the donation is coming from overseas).

Establish how the needed products will be received. In many countries, the national distribution system is based on a central supply model: the central medical store receives medicines and then distributes them to lower-level warehouses, e.g., district or regional stores, which then distribute the medicines to health facilities.

Different types of distribution systems give different amounts of responsibility to the various levels of the health system. In a **push** system, peripheral levels receive medicines based on what a higher level of management decides. For example, CHWs may receive a kit containing medicines in predetermined quantities on a regular schedule established by the program manager or supervising health facility. In such a system, managers review the quantities of medicine in the kits on a regular basis and compare them to the consumption and actual needs so that they can modify the contents accordingly, if necessary.

In a **pull** system, each level of the system determines how much medicine it needs and places orders accordingly. With this system, CHWs and their supervisors determine the quantity needed and then order that amount either at the health facility or the district or provincial medical store.

Based on the analysis of the pharmaceutical system from the situation analysis, program planners must define a mechanism for distributing medicines to CHWs. One of the following two processes is typically the most effective and efficient.

1. The supervisor takes the medicines out to the CHWs.
2. The CHWs come to the health facility or district medical warehouse or pharmacy on a regular basis to pick up medicines.

Table 14 outlines some of the advantages and disadvantages of supervisors' distributing medicines, CHWs' coming to the health facility, and CHWs' coming to the district pharmacy store to obtain their supplies.

TABLE 14: ADVANTAGES AND DISADVANTAGES OF DIFFERENT SUPPLY POINTS FOR MEDICINES USED BY CHWS

	ADVANTAGES	DISADVANTAGES
Supervisor	• Combines monitoring and supervision with medicine distribution	• Supervisory visits may not occur with the frequency required to maintain CHWs' regular supply. • Lack of transportation, seasonal disruptions, or other obstacles may impede supervisory visits. • Can be heavy to carry for multiple CHWs

	ADVANTAGES	DISADVANTAGES
Health facility	• Closer distance than medical store • Provides link and encourages relations with supervising facility • Is a motivating factor for CHW • Helps health facility to monitor consumption	• Availability of medicines may not be constant (although the program can serve as an opportunity to improve supply to the facility level). • Health facilities may not have the human resources or physical space to manage the additional quantities of medicines or the distribution process to CHWs. • May be an extra markup on price of medicines, although that is often small especially relative to the benefit of improved relations with the health facility (this only applies to a system where cost recovery is operational)
Medical store or district pharmacy	• More likely to be a constant supply and sufficient quantities • Better information systems and record-keeping capacities	• Longer distance to travel for CHWs leading to more frequent stock-outs • Less capacity to supervise and support the CHWs in matters beyond the supply of medicines

Address packaging and labeling. Packaging is an important consideration in dispensing. Whenever possible, medicines should be kept in their original packages. If tablets are loose, they should be dispensed to caregivers in small plastic or paper bags, with labeling. Prepackaging, where medicines are already packaged together in a complete treatment course, is also a good option, particularly for ACTs, as this can improve correct use. The decision to use prepackaged medicines is made at procurement—usually by the central level of the MOH—and district-level authorities cannot influence it. However, where tablets are loose, district authorities can take measures to ensure that appropriate sealable plastic sachets are available for dispensing tablets. In this case, a continuous supply of secondary packing material must be assured.

BOX 34: PREPACKAGED ANTIMALARIALS FOR CCM IN RWANDA[119,133]

In Rwanda, the National Integrated Malaria Control Program provides prepackaged blister packets of antimalarials for CCM of malaria. The coordinated effort of the National Malaria Control Program and three international NGOs requires that all CHW training and CCM services use appropriate messages for distribution of the prepackaged medicines. Each treatment dose packet is color-coded for the appropriate age group (red for children 0–35 months with a picture of a young child, and yellow for children 36–59 months with a picture of an older child) and includes instructions and explanations in Kinyarwanda on the inside of the blister pack. Health facilities and CHWs use the same prepackaged medicines. This builds community members' trust that CCM services are comparable to those of the health facility.

Interior of blister pack
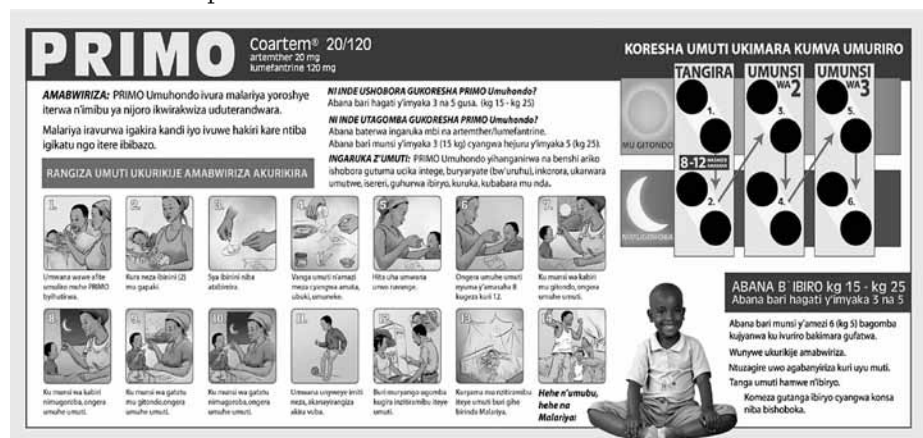
If medicines are not already labeled with the medicine name, dose, frequency, and duration of treatment, the CHWs write the labels. In cases where CHWs or caregivers cannot read and write, alternative methods can be used, such as color-coding and drawings. This is particularly important when CHWs give multiple medicines so that the caregiver can distinguish among them. Examples of useful drawings include a sun in the day or a moon at night to show the time of day to give doses, the number for how many times a day, and a food dish if the medicine is to be taken with food.

Plan how to calculate and make orders. As with other elements in a procurement and distribution system, ordering is linked to the existing procedures.

Decide who is responsible for calculating order amounts. This depends on the CHWs' literacy level and skills. Options include the following.

1. The supervisor from the health facility calculates the amount of medicines to give to the CHW based on the CHW's records of the current amount in stock, the amount distributed/consumed over a specific period of time, plus an additional 10% for safety or buffer stock. The amount also accounts for other considerations, such as seasonality of disease transmission patterns.

2. Equip CHWs with the skills to estimate the amount of medicine they used in a certain period of time—monthly consumption, for example—and how to order stock based on those data using a simple formula.

3. A simple version is to define a minimum level of stock for CHWs and tell them that when the stock drops below that level they need to order a fixed, predetermined quantity, which supervisors or managers calculate in advance, based on consumption information and allowing for a safety stock.

4. Another model is the "two bin system." CHWs receive two kit boxes with equal amounts of supplies. As soon as they finish the first box, they order a new box. The order forms are delivered inside the boxes.

Box 35: Calculating orders in Senegal

In Senegal, CHWs are literate, and they order medicines on a monthly basis. The amount they order depends on what they have in stock. This approach is a combination of options 2 and 3 above.

Order quantity = 2 x average monthly consumption - current stock

If the CHWs have less than two times the average monthly consumption in stock, the order amount would be two times the monthly consumption. If the stock is greater than two times the monthly consumption, they order nothing.

For example, if a CHW uses an average of 50 cotrimoxazole tablets per month, and, at the time to order, the amount of cotrimoxazole in stock is 30 tablets, he or she needs to order 70 tablets. However, if the stock of cotrimoxazole tablets on hand is 100 tablets or more, there is no need to place an order that month.

In this system, CHWs make orders on a monthly basis. They use the calculators provided by the program, which serve as a strong motivation and a sign of recognition of their responsibility.

Box 36: Resupply: frequency and method of ordering depend on the context

In **South Sudan**, the rainy season makes vehicle transport between the health facilities and CHWs impossible.[134] With 100 CHWs and nine health facilities in the program, a system was needed to ensure a reliable supply of the medicines necessary for the CHWs to treat malaria, pneumonia, and diarrhea. Supervisors from each health facility walk to each village to deliver the necessary medicines monthly. They count the number of medicines remaining in each CHW's medicine kit, track the number of treatments distributed since the last visit, and make sure that the CWH has enough stock to last her or him until the next supervisory visit. This system has worked well in South Sudan, with 98% of medicines in-stock, even in the rainy season.

In other programs, CHWs come to a monthly meeting at the health facility to deliver their reports, meet with their supervisor, and obtain resupplies of medicines as necessary.

Develop standardized procedures for ordering, including how CHWs make requests for restock and how often it happens. Orders should be placed on a regular basis, e.g., each month during the first week of the month. If the CHWs determine the quantities to order (a pull system), appropriate mechanisms for communicating the order should be chosen, such as the CHW's taking or sending a written order form to the health facility, or using a radio or cell phone to communicate the order, which a supervisor will bring.

Develop simple order forms for CHWs who place orders. These can be completed either by the CHW or by the CHW supervisor. If the CHWs are responsible for completing the forms, the form should be appropriate for their literacy level and easy to understand. The most basic form is a simple list on a sheet of paper. The advantage of a preprinted form is that it guides the CHWs to complete all information. Maintaining a duplicate or carbon copy of the placed order is helpful so that the CHW can track orders. Figure 11 is an example of a slightly more complex order form from Senegal, where CCM involves cost recovery.

FIGURE 11: CHW ORDER FORM, SENEGAL

Order/Delivery Form

DISTRICT: _____

Date: _____

CHW site : _____

Order made at: _____ By: _____

No.	Name of the products and form	Quantity		Unit price		Total price	
		Ordered	Delivered	Ordered	Delivered	Ordered	Delivered
1	Cotrimoxazole	100		20CFA		2000CFA	
2	ORS	20		15CFA		300CFA	
	Etc.						
TOTAL price						2300CFA	

Amount of money received: (written out) _____

Delivery date: _____

First and last names and signature of store manager: _____

First and last names and signature of CHW: _____

Set up procedures to maintain quality of products at community level. While CHWs do not stock large quantities of medicines, appropriate storage is needed to avoid loss due to undetected theft, deterioration, expiration, and contamination.

Storage conditions. Whenever possible, CHWs should keep medicines in a safe, locked location that is dry, off the ground, out of direct sunlight, and in the coolest part of the house. Medicines, particularly ACT, are sensitive to temperature and ideally should be kept at temperatures under about 30°C.

A locked box, which also keeps the medicines clean and free of insects, rodents, and pests, is ideal (Figures 12 and 13). It is important to have vents in the boxes. Closed boxes may reach very high temperatures under the sun. Quantities should be limited to what is needed for several months.

FIGURE 12:
CHW STORAGE BOX, RWANDA   **FIGURE 13: CHW STORAGE BOX**

Checking the inventory. Supervisors should also check the inventory and record-keeping during supervisory visits, or when the CHWs get their new supply. This allows supervisors to determine when CHWs need more medicines, to monitor stocks, and to detect errors or any losses from thefts or "leaks."

First in, first out. When CHWs receive a new order of medicines, they should dispense the medicines that were already on hand before starting the new supply.

Alternatively, literate CHWs can use **First expiry, first out** after they learn to check the expiry dates of their medicines, to ensure that medicines that expire first are used first. However, it is also the responsibility of the supplying facility to monitor that the medicines provided to the CHWs are not close to expiry dates or already expired.

Develop record-keeping forms and tools. Good record-keeping at all levels allows good management of all aspects of the supply system, including the procurement, distribution, and use of medicines and supplies. Record-keeping systems should be aligned with existing record-keeping systems, while taking into account the needs of the program and the CHWs' abilities. These records can be written or illustrated on preprinted forms or in a notebook.

Although the quantities of medicines that CHWs keep are small, literate CHWs should keep records and have a "stock card" for each medicine (Figure 14) or a ledger

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or notebook with different pages or columns for each medicine. (The toolkit at the end of this section contains an example of a medicine register used in CCM in Nicaragua.) CHWs record information on the date and the quantity of medicine they give to each patient as well as the quantity they receive when their supply is restocked.

Many countries in sub-Saharan Africa make use of the *registres d'utilisation journalière des médicaments et des recettes* [daily record of use of medications and receipts], also known as RUMER. This system could be adapted for CCM, where CHWs and their supervisors are familiar with it.

Figure 14: Stock card, Senegal

Name of medicine : *Cotrimoxazole*

Strength: *480mg*   Form : *Tablet*

Unit: Tablet

Date	Coming from/ going to	In	Out	Adjustment	Stock balance	Comments
2/10/2007	District store	100			100	
5/10/2007	Patient		10		90	
7/10/2007	Patient		10		80	
12/10/2007	Patient		5		75	
03/17/2008	District store	50			125	

Instructions: At the top of the card, fill in the name, strength, and form (tablet or syrup) of the medicine to make a unique card for each medicine kept. After issuing a medicine, write the date in the first column of the card. Then write in the "out" column the amount of medicine given to a patient. In the adjustment column write all perished, destroyed, expired, lost, or found stock. In the balance column calculate what should be left when that amount is taken away from the original balance. This way a running total is kept of the amount of stock remaining. When new stock is received, record it on a new line with the date and the amount received in the "in" column. Then calculate the new balance.

The units recorded can be either tablets or treatments, where blister packs rather than loose tablets are used. Depending on the number of patients seen by the CHW, the quantities recorded could either be per patient or the daily totals.

Record-keeping systems for illiterate CHWs, based on tallying medicines distributed or consumed, are described below.

Record the amount of medicines used (consumption). This information can be taken directly from the stock card or register, when these tools are used. Treatments given, rather than tablets, are typically easier to record, especially for low-literate CHWs.

Illiterate CHWs can track the amount of medicines dispensed using tally systems. CHWs can record numbers of tablets or treatments dispensed on a separate sheet of tally marks, or on the sick child recording form. This can either be in a notebook or on a preprinted form. The advantage of a preprinted form is that it can be attached to monthly reports. For example, CHWs make a mark in colored boxes on a preprinted page with an illustration of a child of a certain age for each child who receives medicines (Figure 15). A supervisor then totals the tally marks on a regular basis. Another option is to give CHWs different colors or types of bottle tops that they use to indicate the treatments given to children of different age ranges.

> **TIP**
>
> **Include essential information for monitoring and evaluation on CHW records**
> Essential information to include on CHW record-keeping forms, whether an individual form for each child a CHW sees or a register of all children seen:
> - CHW name
> - identifying information on the child (name, age/age group, sex, residence, date seen)
> - classification of the child (e.g., fever, diarrhea, severe malnutrition, etc.)
> - treatment dispensed (units or course of treatment)
> - referral to facility
> - referral completion
> - follow-up visits

Figure 15: Example of pictorial tally sheet

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Build in provisions to ensure rational use of medicines and avoid antimicrobial resistance. Well-trained and properly supervised CHWs can correctly assess and treat sick children according to guidelines, as described in Section I. Nevertheless, inappropriate use of medicines is a matter of critical concern. It is dangerous to the child and can slow or prevent the child's recovery. If a child does not get better, the caregiver may lose trust in the CHW and seek care or medicines from other less effective and potentially dangerous sources. When medicines are used appropriately, the child is more likely to improve, and caregivers are more likely to be satisfied with the quality of care provided by the CHW. Inappropriate use can also lead to an equally detrimental consequence—the development of antimicrobial resistance in the case of antibiotics and antimalarials.

Rational use of medicines is more than correct assessment and treatment of children, using the right medicine in the right dosage. Rational use also includes the information, both verbal and written, given to caregivers to help them understand how to give the medicine to their children in the home. Section VI, "Increasing Demand," gives more detail on how CHWs should counsel caregivers to help family members of sick children implement treatment regimens.

Building a community-based referral system

By definition, CCM is most suited for communities lacking access to health facilities. Therefore, referral to a health facility is challenge. Nonetheless, serious cases deserve extra effort. A well-functioning referral system has many benefits for CCM, including treatment for severely ill children and reinforcing the links between CHWs and health facilities.

A referral system that complements CCM in the community is supported by the health system and managed and implemented by community resources. To date, experience with referral systems for sick children is somewhat limited, particularly in comparison to the many years of experience with community-based referral for maternal emergencies. The guidance for referral systems is therefore not as well developed as it is for guidelines for assessment and treatment of sick children, or for guidelines on recruiting and supporting CHWs.

Understand the difference between referral in CCM and promotion of care-seeking in C-IMCI. In CCM, CHWs typically treat mild cases and refer sick children if
- one or more danger signs are present—an urgent referral;
- the guidelines or algorithms used by the CHW indicate the need to refer (for example, the child has a condition that the CHW cannot manage—usually a nonurgent or other referral);
- after one or more days of treatment, the child's condition fails to improve or worsens; or
- the CHW or family is uncomfortable with home management.

In contrast to CCM, CHWs in other programs promote preventive practices and care-seeking from health facilities but do not provide any or the full range of common antibiotics and/or antimalarials to sick children in the community. They refer all children requiring antimicrobials to a facility.

Referral systems in CCM benefit sick children, communities, and the health system. Benefits of referral systems include
- making available procedures and treatments that cannot easily be provided at the community level, such as laboratory tests, intravenous fluids and medicines, and a wider range of treatments including anticonvulsants and oxygen;
- reinforcing the links between CHWs and first- and second-level facilities and strengthening the concept of community providers as collaborators in the formal health care system, not competitors with health facilities; and
- accelerating facility-based health care providers' awareness of conditions at the community level, such as the presence of epidemics or outbreaks of dysentery, meningitis, or yellow fever.

Develop a facilitated referral system to address the poor success of verbal referral. Most programs rely on verbal referral, in which the CHW examines the child and then informs parents that they should take the child to a health facility. However, verbal referral is rarely enough to ensure that a family reaches a facility where the necessary treatment will be provided. In many settings, verbal referral has a poor success rate.

A formal system of facilitated referral[11] entails multiple actions by the CHW to address the weaknesses in a system that relies only on verbal referral and/or referral slips.

Four components of facilitated referral. A CHW is performing facilitated referral if, at a minimum, she or he performs all actions in components 1, 2, and 3, and at least one action in component 4, in an effort to ensure that sick children requiring care reach the nearest facility.

1.   **The CHW counsels to encourage completion of the referral (both actions)**
   - The CHW counsels families about why referral is necessary, and how and where to seek care, and promotes compliance with referral.
   - The CHW fills out a referral slip or writes in a referral book and gives it to the child's caregiver. Preferably, the referral document outlines the history of the illness and treatment to facilitate fast reception and assessment at the health facility.
2.   **Monitoring of referral (all three actions)**
   - The CHW records all referred cases in a register or on the individual child recording form.
   - After examining and treating the child at a health facility, the health worker writes a note to the CHW stating the outcome of the referral and explaining the follow-up that the CHW should perform in the home. This is called "counter-referral" or "back referral."

- Both referral and counter-referral are tracked in a health information system, and the outcome of referral is covered in supervisory visits or monthly meetings.

3. **The CHW provides initial treatment prior to referral**
   - This is especially important for cases where it will take several hours to reach the first-level facility, and delay in initiation of treatment puts the child's life at risk.

Plus at least one of the following.

4. **The CHW addresses barriers to referral: geographic access and financial access (at least one action)**
   - The CHW inquires about barriers to referral and works with the family to address them.
   - The CHW has access to, or can inform the family about, a source of money at the community level that can provide or lend the family the funds necessary to seek care from a health facility.
   - The CHW has access to, or can inform the family about, a source of emergency transport at the community level.
   - The CHW accompanies the family to the health facility to ensure that they receive immediate care.
   - The CHW notifies the health facility by radio or cell phone and informs the caregiver that the facility is awaiting the child's arrival.

At follow-up the CHW follows the instructions in the counter-referral and counsels caregivers to help sustain the adoption of supportive behaviors.

Steps to designing a community-based referral system. In CCM, referral is the process in which a CHW assesses the immediate needs of a sick child and determines the need for the child to be treated at a health facility. Structures in the community, working in coordination with higher levels of health services, support the transfer of the severely ill child to a facility.

The organization or structure that first makes the referral is called the referring structure or point of initiation of the referral. For CCM, the point of initiation of referral most often is the CHW. The organization or structure to which the patient is referred for services is called the receiving structure. For CCM, the receiving structure is usually a first-level health facility, but in some cases may be a second-level facility.

The design of a community-based referral system needs to take into account factors that range from cultural behaviors to quality of care at the receiving facility. Caregiver understanding of referral and gaining access to referral are two issues to address in the design. Many community-based intervention models focus on access to referral and overlook the importance of fully understanding referral decision-making. Steps 1 and 2 below describe considerations and the stakeholders in caregiver understanding of referral; steps 3 and 4 address access to referral.

Step 1: Define the process for identifying cases needing referral

- Refer to existing CCM algorithms or guidelines for clear definitions of which cases, conditions, or diseases require referral.
- Clearly identify the person responsible for making the referral, usually the trained CHW.
- Ensure that CHW training and related guidelines and tools include sufficient attention to building CHWs' knowledge of the referral process.
- Define what needs to be done to help caregivers understand the referral process. This step often includes the development of materials to help mothers and other caregivers to identify children's health problems that need immediate attention, and to understand referral mechanisms. (See Section VI, "Increasing Demand," for more information on developing counseling materials that CHWs use to help caregivers understand the treatment process.)

Step 2: Take into account family decision-making in order to promote referral completion

Referral completion is a complex process that includes acceptance by the caregiver or decision-maker of the need for referral[107] and previous personal experiences with the receiving structure. A successful referral system takes into account the many factors that can influence the decision to evacuate a sick child from the community. In designing a referral system, consider the following.

- Which people in the household and community make or influence the decision to bring a sick child out of the community to the referral facility? In many cases, this is the child's father, but it can also be another relative or community member.
- What is the level of trust and quality of communication at both ends of a referral (the point of initiation of the referral and the receiving structure)? Poor communication can have a negative influence on the decision to take a child out of the community. CHWs can take steps to make the caregiver and decision-maker aware of the reasoning behind referral and ensure that they have taken part in arriving at the decision to refer.
- How does the family or community perceive the quality of care at the receiving facility? Personal experience with or community anecdotes about poor treatment at the receiving facility are some of the most important factors that influence a successful referral. The program should take steps to ensure that quality care is available at receiving end. In addition, CHWs may be able to improve perceptions of care at the receiving facility.

If the situation analysis did not explore the factors that affect families' choices to follow referral advice, this step of the design process might require qualitative studies such as focus groups, in-depth interviews of key community informants, and others to fully understand referral.

Step 3: Develop solutions to address barriers to referral completion

Families commonly do not follow referral instructions many reasons. Issues related to cost and transportation are often the main barriers to a successful referral. These may include

- lack of transportation or high costs of transport to and from the receiving facility;
- costs at the receiving facility (fees for services, laboratory costs, and medicines);
- costs for food at the receiving facility;
- poor quality of roads, trails, or water routes running between the two facilities; and
- flooding, snowfall on mountain passes, and other seasonal variations affecting access.

In addition, **social**, **cultural**, **and health-facility factors** may impede referral. Examples of such barriers are

- difficulty obtaining permission from the father or family decision-maker to seek care from a health facility due to the costs and the attention the family may attract in leaving the community to seek care;
- ethnic minority or low-status caste families' concerns that they will be unable to communicate in the national language used in the receiving facility, or they may be treated badly on the basis of their ethnicity or caste;
- inability of a woman to leave the community unaccompanied, due to security concerns or the husband's disapproval;
- loss of income or source of support and sustenance due to time spent away from agricultural work or household chores; and
- perceived and/or actual poor quality of care at the referral facility.

Developing solutions to such barriers is a critical task in the design of a referral system in CCM. The geographical areas where CCM takes place are the very ones where receiving structures are not nearby, and populations in these areas likely face serious economic challenges, including higher than average costs to reach services. Some community-based programs address issues related to costs by pulling together community resources or organizing community drugstores (such as the *boticas* in Bolivia—Box 18 in Section III, "Enabling a Supportive Social and Policy Environment"). Others develop policies for fee waivers, where user fees at receiving facilities often deter successful referrals. Several community initiatives try to reduce transportation barriers through community transport schemes. These typically involve volunteer drivers using their own vehicles to provide door-to-door journeys for people without transport.
Other schemes, such as an obstetric emergency transport system in Honduras, use local resources to address transportation issues.[135] Some communities use bicycle ambulances,
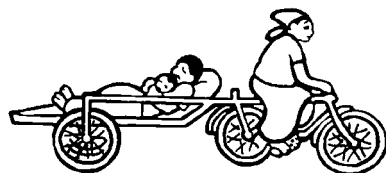
and others make arrangements to use cell phones to call the receiving facility for a vehicle that can meet the referred family along the way.

Finally, CHWs must monitor their referral completion rate, not only to assess their skill in motivating and problem-solving, but also to monitor the child. Next day follow-up is essential.

Step 4: Identify the receiving structure and prepare it for receiving sick children

The referral system needs to identify the closest facility with the capability to adequately treat a severely ill child. Often this is a first-level health facility. However, it may be a second-level facility when the capacity of a first-level facility to provide services for the identified illnesses cannot be assured. Lack of personnel and/or equipment as well as the hours (or days) in which a facility is open are factors that may limit capacities. Usually the referral facility is identified through the situation analysis and the process of mapping access.

If the situation analysis did not assess service delivery capacity and quality at the referral facility, then the referral system design process may need to include a rapid assessment, guided by tools such as the *Rapid health service provision assessment (R-HSPA)*.[136] Issues to consider in the referral structure include

- types of personnel and their level of training (doctor, professional nurse, and nurse assistant);
- ethnicity and language of health providers;
- type and quality of health services: medicine availability (shortage of medicines can have a negative effect on referral success);
- attitudes of health personnel toward care for children referred by CHWs; and
- hours of service availability (24 or 8 hours a day; 7, 5, or fewer days a week, etc.). Actual availability may exceed official hours of operation if a facility-assigned health worker resides near by.

After identifying receiving facilities, participatory processes such as partnership-defined quality,[137] which engage the community in defining, implementing, and monitoring the quality improvement process, can help guide ongoing actions to promote continuous access to quality care. Above all, good CCM requires health-facility partners with a full understanding of CCM and a willingness to support it. These same people often train, supervise, and support CHWs (see Section V, "Increasing the Quality of CCM").

> **Box 38: Facilitating referrals: approaches in Mali, Nicaragua, and Peru**
>
> In the southern region of Mali, 300 "village drug kits," maintained by CHWs, are the core of the CCM program.[58] When a CHW sees a child requiring referral, he or she records the child's name and the reason for referral in a notebook, places the notebook in a "**referral bag**," and instructs the caregiver to take the sick child, along with the referral bag, to the nearest community health facility.
>
> CHWs in Nicaragua each have a **purple handkerchief** (*pañoleta*), which they lend to caregivers to place on the sick child when taking her or him to a referral facility. This allows providers at the facility to easily identify the sick child and move him or her to the head of the line.
>
> In remote mountainous communities of Peru, CHWs give the caregivers a referral slip and use radio to contact the facility to announce the arrival of the sick child.[138] A community "**evacuation brigade**" assists with transport of sick children to the nearest facility. The facility-based health worker sends a "counter-referral" with feedback to the CHW on the diagnosis and treatment of the child.

Develop tools to facilitate a referral process and use them to monitor referrals. In addition to the clinical algorithms or guidelines for CHWs and the home-based reminder materials to help caregivers better understand CCM and referral procedures, a referral system requires other forms and tracking tools.

Referral forms are standardized forms used throughout the referral system that ensure that basic information is recorded whenever a referral is done or initiated. The minimum information required on this form includes date and time of the referral, name and age of patient, problem identified, treatment provided at point of initiation, and name of CHW and locality. The CHW gives the referral form to the family and directs them to the designated receiving facility. Providing a well-designed referral slip to the patient can improve referral completion. Some programs use duplicates or carbon copies—one for the CHW to keep and one for the caregivers to take with them. Figure 16 shows the referral form used by dispensers in ADDOs in Tanzania. Figure 17 shows the referral form from Nicaragua, which includes counter-referrals.

The referral form should also include a means to track **counter-referrals**, providing documentation that the referral process was completed. CHWs record

counter-referrals (or completion of referral) in their registers or other records. Facilities should also keep records of referrals received from CHWs. Some programs maintain separate referral registers.

Figure 16: Referral form for the ADDO Program, Tanzania

Ministry of Health and Social Welfare/Tanzania Food and Drug Authority		
Referral Form		
		No.
Name		
Sex	Age	Address
Date	Time	
Name of ADDO		
Signs of illness		
Reason for referral		
Treatment provided by ADDO before referral		
Name of health facility to where referral patient is going		
Name of ADDO dispenser who is giving referral		
Signature		Stamp

FIGURE 17: EXAMPLE OF REFERRAL AND COUNTER-REFERRAL FORM

Patient referral and back-referral form[80]
CHW to complete all shaded sections

1. CHW referral form (retained by CHW)

Name of Patient: _____ Age: _____ Male/Female_____

Caregiver's name & relationship: _____

Village/subvillage: _____Date of Referral: _____ Time: _____

Referred to facility (name): _____

Major complaints: _____

Classification (if CCM patient): _____

Treatment given:_____

Emergency scarf given: yes/no _____

- -

2. CHW referral form (retained at the facility)

Name of referring CHW: _____

Name of Patient: _____ Age: _____ Male/Female_____

Caregiver's name & relationship _____

Village/subvillage: _____Date of Referral: _____ Time: _____

Referred to health facility (name):_____

Classification (if CCM patient): _____

Treatment given:_____

- -

3. CHW back-referral form (returned to CHW by family)

Name of Patient: _____ Age: _____ Male/Female_____

Caregiver's name & relationship: _____

Village/subvillage: _____Name of referring CHW: _____

Health facility (name): _____

Referred on (date):_____Arrived on: Date _____ Time_____

Patient condition on arrival:_____

Diagnosis or Classification (if CCM patient): _____

Treatment given:_____

Instructions for referring CHW:_____

Follow-up date: _____ Feedback by (name & designation): _____

Consider the challenges to a well-functioning referral system. Despite the positive aspects of a referral system in CCM, the decision to invest resources in establishing a community-based referral system should take into account the inherent difficulties this entails. CCM is most needed in settings with poor access to facility-based care. These are precisely the same settings where completion of referral is going to be most difficult for many families. Furthermore, working to ensure quality care at receiving facilities may be most problematic. The following potential situations are examples how such difficulties might undermine CCM.

- If a sick child is referred to a health facility for care rather than being treated immediately in the community, and subsequently the parents decide not to take the child to the facility, the child might end up worse than if the CHW had treated the child immediately. Program managers and CHWs need to recognize these situations when referral is not feasible, for example, in villages that are totally cut off from health facilities by rivers during the rainy season.
- If facility-based health workers do not prioritize children referred by CHWs, but rather have them wait in line as if they were patients coming for more routine care, the position of the CHW as a care provider can be weakened, especially if the child dies.
- If a sick child arrives at the health facility but care is not available, or is of poor quality, the credibility of the referral system in the eyes of the community is immediately undermined.

Have a back-up plan. CCM must have an alternative plan for occasions when referral is either impossible or refused. This may involve routine treatment with extra follow-up, "high dose treatment" (e.g., double dose of amoxicillin for severe pneumonia) in some special cases, or mobilizing influential community members to both encourage the reluctant caregiver or family and help provide the means. Pressuring a reluctant family can be delicate, especially when the family hesitates due to the apparent hopelessness of the situation. Such patients often do not survive, and the family then has not only the grief but also the shame, anger, and financial loss.

Monitor and evaluate access and availability

With the exception of the mapping to identify communities with or without access to lifesaving interventions through CCM, all other data to monitor access come from routine records—the CHW records and/or the supervisors' records and those of the medicine supply point (the health facility or district pharmacy). CHWs or their supervisors summarize the information from individual CHW records regularly (monthly or quarterly). Supervisors then summarize the data for all CHWs that they supervise. At the district level, these data are again compiled for all CHWs in the program area. Table 15 illustrates this process.

TIP
Remember that CCM can have a substantial impact on mortality reduction, even where referral is very difficult.

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Managers then compare achievements against standards or targets set to determine if adequate progress is being made toward achieving the results. Table 10 suggests standards for most indicators of access. Standards for access—percentage of communities with CCM—are program-specific, depending on resources, the nature and needs of communities, and program capacities. Programs should always aim to have a continual supply of CCM medicines, however. There is very limited documentation of referral rates in CCM, but experience from IMCI programs in some African countries suggests that a referral rate of less than 20% indicates a well-functioning capacity at the level of CCM.[107] Referral completion is a more useful indicator of access, because it tells whether or not severely ill children actually got the necessary services. Studies suggest that a completion rate of 80% indicates a well-functioning referral process.[108] A 100% completion rate is generally neither possible nor desirable, as some children's conditions may resolve on their own, and parents may make an appropriate choice not to seek referral care.

TABLE 15: DATA MANAGEMENT IN CCM

DATA SOURCE	PERSON RESPONSIBLE	COMMENT
CHW record	CHW	
↓		
Monthly summary CHW activity	CHW or supervisor	Include observations of quality of service and availability of medicines.
↓		
Monthly summary all CHWs per supervisor	Supervisors	Include observations of quality of service and availability of medicines.
↓		
Monthly summary all CHWs in district	Manager	Include observations of quality of service and availability of medicines.
To next highest level of interest		

It is often easier to analyze data when they are displayed graphically. For example, Figure 18 demonstrates that access to CCM has increased in all districts, but access in Santa Rosa district is less than in other districts.

FIGURE 18: EXAMPLE OF DATA DISPLAY SHOWING ACCESS TO CCM80

Percentage of communities with CCM by district
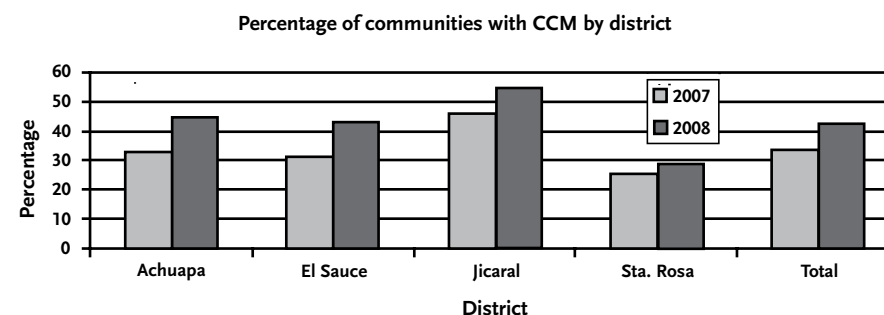
Toolkit: resources for increasing access

Technical reference materials (from CSTS+/USAID and others)

IMCI (2007)
Malaria (2006)
Pneumonia (2005)
Diarrheal disease (2007)
Management of projects and supplies (2007)
Monitoring and evaluation (2007)
Compendium of child survival monitoring and evaluation tools, MEASURE Evaluation

Selecting interventions: IMCI, C-IMCI, CCM guidelines, and guidance on treatments

NOTE: See also Section I, "Introduction," for more resources on IMCI and C-IMCI.

Caring for the sick child in the community. WHO Department of Child and Adolescent Health and Development, CAH@who.int, attention B Daelmans, C Wolfheim, or the Health Program Division of UNICEF, attention A George, ageorge@unicef.org.

Guidelines for new diarrhea treatment protocols for community-based healthcare workers. Washington, DC, USAID/MOST Project, 2005. Also available in Spanish.

Integrated management of childhood illness for high HIV settings. Geneva, WHO and UNICEF. 2009.

Rosales A, Weinhauer K. *C-IMCI handbook: community integrated management of childhood illness*. Baltimore, MD, Catholic Relief Services, 2003.

Guidance on treatments for use in CCM

Facts on ACTs (artemisinin-based combination therapies): January 2006 update. Geneva, WHO.

Technical updates of the guidelines on the integrated management of childhood illness (IMCI): evidence and recommendations for further adaptations. Geneva, WHO, 2005.

Rapid diagnostic tests for malaria: background and training materials

Generic malaria *P. falciparum* RDT result.

How to do the rapid test for malaria. Generic job aid.

How to use a Rapid Diagnostic Test (RDT): a guide for training at a village and community level. Quality Assurance Project (QAP) and WHO, 2006.

Malaria *P. falciparum* Rapid Diagnostic Tests. Quiz for testing ability to read RDT results.

Malaria *P. falciparum* RDT Test. Interpretation of quiz results.

Rapid diagnostic tests in malaria case management: planning, procuring and implementing. Suggestions for incorporation of malaria RDT-based diagnosis into proposals to the Global Fund Foundation for Innovative New Diagnostics (FIND). Geneva, WHO Global Malaria Programme, Special Programme for Research and Training in Tropical Diseases, sponsored by UNICEF, UNDP, World Bank, and WHO. Modified from existing documents of the WHO Global Malaria Programme and WHO Regional Office for the Western Pacific. April 2009.

Establishing CHWs

Bhattacharyya K et al. *Community health worker incentives and disincentives: how they affect motivation, retention, and sustainability*. Washington, DC, BASICS/USAID, 2001.

Revolving medicine funds

Drug revolving funds in Ta Mpando: an assessment tool. Washington, DC: Africare, 2001.

Available at CORE Child Health and Development Database (http://www.coregroup.org/imci/).

Drug revolving fund supervisory tool: a job aid for supervisors (Malawi). Washington, DC, Africare, 2001.

Management of common illnesses in drug revolving funds—draft training manual for CHVs. Washington, DC, Africare, 2001.

Managing medicines and supplies

Assessment tools from MSH/RPM+: Community drug management for childhood illness (CDMCI)

Briggs J, Nachbar N, Aupont O. *Community drug management for childhood illness: Senegal assessment, September 2002*. MSH/RPM+ for USAID, 2003.

Drug management for childhood illness. Washington, DC, MSH/RPM+, 2000.
For facility-level assessments. Assessment Manual and Data Collector's Guide.

Kiyombo M et al. *Gestion des médicaments des maladies de l'enfant au niveau communautaire en République Démocratique du Congo, Kinshasa* [Survey report on community-level management of medicines for childhood illnesses in the DRC]. Washington, DC, MSH/RPM+ for USAID, 2007.

Nachbar N et al. *Community drug management for childhood illness: assessment manual*. MSH/RPM+ for USAID, 2003. Also available in French and Spanish.

Paredes P et al. *Evaluación de la disponibilidad y uso de medicamentos para enfermedades de la infancia a nivel de la comunidad: Peru, 2003*. Washington, DC, MSH/RPM+ for USAID, 2004.

Training materials

Module de formation des agents de santé communautaires (ASC) en gestion de stock de médicaments—guide du formateur et guide du stagiaire (draft). Washington, DC, MSH/RPM+, 2003.
A facilitator and participant manual for training CHWs in Senegal to manage medicine stocks.

Job aids

CHW medication order form, MSH/RMP+

Daily medication distribution ledger, MSH/RPM+

CHW Stock Card, MSH/RPM+

CCM medicine register, Democratic Republic of the Congo[80]

Procurement

UNICEF supply catalogue

Home-based reminder materials

Favin M et al. *Guidelines for developing home-based reminder materials: helping families save sick children*. Millwood, VA, Project HOPE and Academy for Educational Development, 2004.

Referral systems

Facilitator's guide for training emergency transport committees in case of obstetrical complications. Baltimore, MD, Catholic Relief Services, 2004.

Rapid health service provision assessment (R-HSPA). Child Survival Technical Support Team Plus (CSTS+), MACRO International.

A study of referral non-compliance in the ARI strengthening program. JSI Nepal, 1997.

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Section V:

Increasing the Quality of CCM

Overview and definitions

Quality has been defined as "doing the right thing, in the right way, at the right time."

Different stakeholders have different perspectives on quality. Although the definition of quality may seem simple, describing quality can be complicated. Quality looks different from the perspective of different stakeholders, as shown in Figure 19 below.

Figure 19: Different perspectives on quality

As a **parent**, I want to know:
• Does the community provider have drugs?
• Did he check my child?
• Did he speak to me nicely?
• Is the service available at any time? At a cost I can afford?

As a **community provider**, I want to know:
• Did the parents bring the child on time? Do they give the full course of drug I gave them?
• Do I get training and other support when I need it?
• Can I refer easily?

As a **technician**, I want to know:
• Does the provider screen patients correctly?
• Does he use the right drug?
• Does he store the drugs correctly?
• Are the reports accurate?
• Is the service cost-effective?

Source: *Hesperian Foundation*

Quality assurance: a systematic approach to "doing it right." Quality assurance ensures that the details of health care are done correctly, in order to improve program and health worker performance.[139] Quality assurance includes all activities and processes that contribute to defining, designing, assessing, monitoring, and increasing the quality of health care.

Quality assurance leads to desired results in CCM. Quality assurance in CCM can do the following.

- It can make case management **more effective and safer**: giving the right amount of medicine, for the right duration, increases a treatment's efficacy and prevents children from being harmed by inappropriate doses of medicine.
- It can maintain **antimicrobial effectiveness**: restricting antimicrobial use to appropriate indications, and improving patients' adherence to treatment—something CHWs are very good at doing—helps slow the spread of antimicrobial resistance.
- It can improve CHW **motivation**: providers are more motivated if they feel they are providing a quality service. Also, many of the processes that improve quality, such as supervision and feedback, can boost motivation, if conducted well.
- It can increase **demand for and use of interventions**: caregivers are more likely to get treatment—and to return as needed—if they perceive the service to be of good quality.
- It can provide **evidence needed for program scale-up**: decision-makers need evidence of good quality to authorize the extension of CCM.
- It can increase community "ownership" of CCM and thus **sustainability**.

Sample indicators of quality in CCM. Although there are no standard indicators of quality for CCM yet, Table 16 contains indicators derived from experience in several different settings.

Table 16: Sample indicators of quality in CCM[83]

Indicator	Definition	Source of data	Frequency of collection	Point person	Comments
CHW correct case management	% CHWs correctly accomplishing core competencies	Supervisor's checklist (sick child or simulation)	Completion of training; monthly/ quarterly	Trainer/ supervisor (at training), supervisor	Includes correct: • assessment • classification • treatment • counseling • referral • facilitated referral • completion register/ forms Standard = 80–100%
CHW correct assessment	% CHWs demonstrating accurate respiratory rate measurement/ Use of armband	Supervisor's checklist	Completion of training; monthly/ quarterly	Trainer/ supervisor, supervisor	Standard = 80–100%
Availability of medicines	% CHWs with each medicine on day of supervision	Supervisor's checklist/ CHW medicine stock register	Monthly/ quarterly	Supervisor	Standard = 100%; also indicator of access
Medicine storage	% CHWs with medicines stored in a secure, cool, and dry location	Supervisor's checklist	Monthly/ quarterly	Supervisor	Standard = 80–100%

Indicator	Definition	Source of data	Frequency of collection	Point person	Comments
Availability of supplies & materials	% CHWs with all supplies, forms, & materials on day of supervision	Supervisor's checklist	Monthly/quarterly	Supervisor	Standard = 80–100%
Supervision	% CHWs receiving monthly/quarterly supervision visits	Supervisor's record of supervision visits	Monthly/quarterly	Supervisor	1/month or quarter
Caregiver satisfaction with CHW services	% caregivers rating CHW as good/excellent	Supervisor's checklist	Monthly/quarterly	Supervisor	Requires home visit; standard = 80–100%

Strategies, interventions, and activities for increasing quality

Review the findings of the situation analysis. The situation analysis or other formative or midterm research reveals factors that may inhibit or facilitate the quality of CCM and that need to be addressed in program design or mid-program improvements. Particularly important for CCM and CHWs are practical training focused on core competencies, easy-to-use tools for case management, and strong supervision and monitoring systems.

Supervision is the heart of quality assurance in a CCM program. Supervision of CHWs is the main process for collecting data and monitoring quality in CCM. Quality monitoring should be a routine activity, ideally initiated through competency-based training and CHW certification. Table 17 illustrates the important elements of quality in CCM, which can be assessed through supervision.

Table 17: Important elements of quality for CCM

Quality element	Questions
Assessment	Does the CHW correctly assess sick children?
	Does the CHW properly question the caregiver, observe signs of illness, measure the child's respiratory rate, and use flow chart, recording forms, or job aid?
Classification	Does the CHW correctly identify the problem(s)?
	Does the CHW use the flow chart or job aid?
Treatment	Does the CHW give the right medicine, in the right dose and quantity?
	Does she or he correctly combine treatments when needed?
	Does she or he refer when appropriate?
	Does she or he provide the first dose of medication before referral?
	Does she or he help the caregiver initiate and complete the referral?
Counseling & communication	Does the CHW communicate courteously with the parent?
	Does she or he take time to listen to the caregiver's complaint?
	Does she or he give correct instructions to the caregiver about the illness, the treatment, and about related preventive and supportive measures?
	Does she or he follow up with the child according to protocol?
Medicine storage	Are the medicines stored in a secure, cool, and dry location?
Recording	Is recording complete and legible?

CHW algorithms and corresponding job aids are the basis for defining and monitoring quality, and for training and supervising CHWs. CHWs use algorithms or decision-making charts to manage sick children. They typically have chart books or similar job aids to remind them of the steps. They record their findings on encounter forms or in registers. Overly elaborate charts, tools, and recording forms may make it more difficult for CHWs to perform case management and document their findings—thus reducing both the quality of care and the quality of monitoring data. Thorough training of CHWs and their supervisors in the correct use of these tools contributes to quality, but the tools need to be manageable.

Partnerships with the community can increase the perceived quality of services. Both the nature of the face-to-face encounter with the CHW and gender-related and other sociocultural factors affect perceptions of the quality of services. When community members select CHWs, they are participating in quality assurance by defining the characteristics that they want in a provider. But the role of

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the community in quality assurance can go beyond that. Community mobilization activities and community management structures are means through which the community participates in defining, demanding, and working toward good quality of care in both community-based and facility-based services.

Develop job aids that correspond to country guidelines

Tools and job aids enhance CHW performance. Job aids typically include
- case management flow charts or algorithms (chart books);
- patient recording forms or registers;
- referral forms;
- counseling cards;
- home-based reminder cards and related materials; and
- other materials such as posters, wall charts, and pocket manuals.

Section IV, "Increasing Access," discusses job aids related to referral (referral forms). Section VI, "Increasing Demand," discusses counseling and home-based reminder cards. Supervisors also need tools and job aids, which are discussed below. This section focuses on CHW chart books and recording forms. Each program needs to develop its own job aids for CHWs by adapting tools used in other CCM programs or prototypes developed by WHO and other international agencies. Important issues to take into consideration developing and adapting tools for a specific country or program setting include
- how the job aids will be used,
- CHWs' and caregivers' literacy,
- local language, and
- local terms for signs and disease classification.

Box 39: Tips for developing tools and job aids for low-literate CHWs

Highly pictorial materials are particularly important for CHWs with few or no literacy skills, but they are often helpful for all CHWs.
- Use the same pictures with consistent messages in all materials (manuals, job aids, classification cards, home therapy cards, treatment registers, referral slips, etc.). The CHWs will become familiar with the same pictures, and repetition reinforces understanding.
- Use color for more effective understanding of classification. Many countries adapt IMCI algorithms, using red as a background for danger signs, yellow for signs that should be treated by the CHW, and green for signs that the caregiver can manage with good counseling only. The red-yellow-green classification, however, may be less useful in societies not accustomed to this color orientation with stoplights. Color, of course, adds cost.
- Pretest the pictures to ensure that the graphics are appropriate and easily understood.

Figure 20 shows an assessment and treatment algorithm or flow chart, designed for CHWs with at least a primary education. It combines text with color-coded reminders to show the step-by-step process for classification and action. Subsequent flow charts explain the treatments for CCM-treatable conditions.

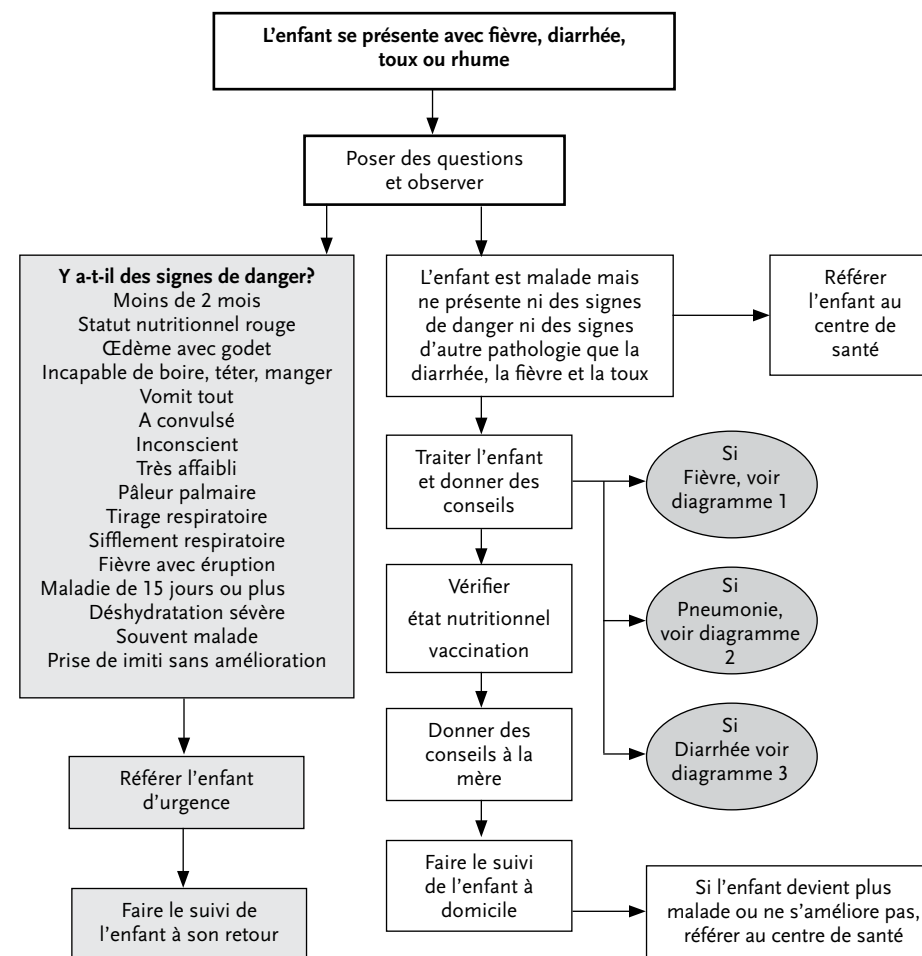**Figure 20: Example of flow chart, Rwanda**

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Figure 21: Individual child recording form, Rwanda

FICHE INDIVIDUELLE DE PRISE EN CHARGE DE L'ENFANT MALADE PAR L'ASC

Date:☐☐ /☐☐/☐☐ FOSA: _____☐☐☐ Village: _____☐☐☐

ASC: _____☐☐☐ Nom de l'enfant _____ Parent: _____

Date de naissance:☐☐ /☐☐ /☐☐ Age:☐an(s) ☐☐mois Igitsina: Kobwa Hungu

NUTRITION

MUAC:☐☐☐ en cm Classification: Icyatsi Hondo Tuku

SIGNES DE DANGER (REFERER SI "YEGO")

Moins de 2 mois Y O	Tirage respiratoire Y O
Statut nutritionnel rouge Y O	Sifflement respiratoire Y O
Œdème avec godet Y O	Maladie de 14 jours ou plus Y O
Incapable de boire, téter, manger Y O	Souvent malade Y O
Vomit tout Y O	Prise de imiti sans amélioration Y O
A convulse Y O	Fièvre avec éruption Y O
Inconscient Y O	Déshydratation sévère Y O
Très affaiblie Y O	Sang dans les selles Y O
Pâleur palmaire Y O	

REFERER Yego Oya

SYMPTOMES, TRAITEMENT & POSOLOGIE

SYMPTOMES   TRAITEMENT   POSOLOGIE

Cp/prise Fois/jr No. de jrs

Fièvre Yego Oya Coartem Tuku Hondo ☐ ☐ ☐
Diarrhée Yego Oya Zinc 5 cps 10 cps ☐ ☐ ☐
ORS ☐ Sachets
Toux Yego Oya
Fréq respirat Nb/minute ☐ Amox 5 cps 10 cps ☐ ☐ ☐
15 cps 20 cps

Autre(s) signe(s): _____

EXPLICATION à la mère ou au gardien de l'enfant

Explication de la maladie Y O   Explication du traitement Y O
Explication de la posologie Y O

PREVENTION

Vaccination complète Y O   Vitamine A dans les 6 mois Y O

EVOLUTION DE MALADIE

Visite de suivi à ménage Y O
Evolution de maladie de l'enfant: Guéri Référé Décédé

Figure 21 is an individual child register, where the CHW records the child's identifying information, nutritional status according to mid–upper arm circumference, the presence or absence of danger signs and the action taken (referral yes or no), signs present, treatment and dosage given, explanations given to the mother, preventive measures, and follow-up. The toolkit contains other examples of algorithms, chart books, and recording forms.

Job aids can also work well with nonliterate workers, as the tool for nonliterate CHWs in South Sudan in Figure 22 demonstrates.

Figure 22: Job aid to remind CHWs of danger signs, South Sudan

Danger Signs
Ask and Check for the 4 Danger Signs

1. **Not Breastfeeding, Eating, or Drinking**
Ask: Can the Child Breastfeed, Eat, or Drink?   *Do:* Give Child Something to Drink

2. **Convulsion**
Ask: Has the Child Had a Convulsion During this Illness?

3. **Stiff Neck**
Ask: Does the Child have a stiff neck?   *Do:* Gently turn Child's neck to check for stiffness

4. **Abnormally Sleepy, Being Too Weak**
Ask: Is the Child Too Sleepy, Too Weak, or Have Difficulty Waking Up?   *Do:* Clap your hands to get child's attention

Pretest job aids. Before job aids are finalized, they are pretested with the people for whom they are designed: CHWs, community members, and caregivers. Trainers and supervisors need an opportunity to review job aids, as they too will use them. *Guidelines for developing home-based reminder materials: helping families save sick children* outlines a process that can be used for preparing and pretesting all forms of job aids.[140]

Build in supervision from the start

Supervision is the glue that holds different stakeholders together: parents, CHWs, health-facility staff, and district managers. It is impossible to ensure good quality in CCM without regular supervision. Supervision allows program staff not only to collect data on quality but also to assess reasons for lapses, anticipate future problems, and put solutions in place. It is also a mechanism to reinforce CHWs' training, boost their confidence, and increase their morale. Supervision is a challenge for many programs, because the providers to be supervised are often dispersed in remote locations.

Establish the supervisory process. A supervisory system can include a variety of activities. When establishing a supervisory process, several factors that can affect the feasibility of different activities should be taken into account. These include

- the scope, capacity, and resources of the program;
- the size of the catchment area covered by the program;
- distance to and accessibility of CHWs' homes;
- seasonal issues (rains, etc.); and
- CHW and supervisor workloads.

The supervisory process usually includes the following activities.

Consultation observations. Supervisors accompany CHWs on home visits and directly observe sick child consultations. Supervisors use performance checklists (Figure 23) to monitor assessment, treatment, and counseling practices and then provide feedback to CHW on their performance and quality of care, in a private place. Supervisors can also assess CHWs' comfort with different aspects of the consultation and their ability to respond to problems. CHWs should receive suggestions for improvement and praise for their efforts.

Medication management. Supervisors review the CHW's medicine register and observe the location and maintenance of the medicines in the CHW's home. They assess for stock-outs and distribute medicine supplies as needed.

Record review. Supervisors also check the CHW's encounter forms or registers for completeness, legibility, and accuracy.

Follow-up interviews with families of sick children. Supervisors can visit selected households that have recently interacted with a CHW to interview caregivers about the information, treatment, and counseling they received from the CHW, and their overall experience during the sick child consultation.

Simulated consultations. When it is not feasible for supervisors to either accompany CHWs or visit households, CHWs can perform mock consultations in the presence of a supervisor. CHWs pretend to conduct a sick child consultation, demonstrating how they typically provide care and responding to questions posed by the supervisor. Structured simulations are recommended as they are easier to score and allow valid comparisons.

CHW meetings. In addition to individual supervisory visits, supervisors can convene regular meetings with a group of CHWs. The meetings should be held at a health facility or other central location that is as convenient as possible for the CHWs. It is best to schedule the meeting during a time that will not interfere too much with the CHWs' other activities. For example, a meeting early in the morning or late in the afternoon may be easier for the CHWs to attend if they have farming tasks. At the meeting, supervisors offer general feedback, provide refresher training, and respond to questions and problems that have arisen during the course of program activities.

This is also an opportunity for CHWs to ask questions, raise issues that they have encountered in providing care to families, and solicit support and assistance from supervisors and other CHWs. CHWs can exchange information and advice based on their experiences and jointly develop solutions to problems. CHWs can also comment on any deaths reported in a community. Supervisors may choose to distribute medicine supplies to providers during these sessions.

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BOX 40: AN EXAMPLE OF GOOD SUPERVISION[89]

"When we visit a CHW, we want to know whether she records all of the children she sees, the medicine storage and stock she has. We also randomly try to visit one of the children she has seen. We want to find out if the child is less than five years old. We want to see if the child's mother received and understood the instructions for the medicines, and whether the mother followed the instructions. Finally we want to see if the community is happy with the CHW's services.

"We went to the home of a CHW for a village. When we arrived, she was milking the cows and asked us to wait for her to finish. We did and afterward she called us into her *tukul* (traditional hut) and was delighted with our visit.

"We found out that the CHW kept the medicine box in a separate house from where she cooks. She locks the box up to prevent children from getting access to the medicine. She opened the box and showed us the zinc tablets, ORS sachets, amoxicillin tablets, and ACT tablets. The physical count showed she had enough stock to last a month. She also showed us a timer, used to count respiratory rates, in good working condition, a pair of scissors, and the patient and medicine registers.

"She had seen three patients whose names were well marked in the clean patient and medicine registers. Her records showed she gave the correct dosages as per age.

"During a visit like this, we randomly selected one patient from the list that a CHW had seen and recorded. We selected a 2-year-old-girl, who was brought to the CHW on December 27th. The child's signs included a fever and coughing.

"After making an assessment, the CHW started the child on two ACT tablets daily for three days for malaria. She counted the child's breath using a respiratory timer and started the child on amoxicillin tablets for pneumonia, advising the mother to give her the tablets three times a day for five days. The mother understood the instructions and advice she was given. The mother said the child had improved greatly and that she was very happy with what the CHW is doing in the area and the CCM program. The mother said that in the past mothers would get confused when a child fell sick, but today things are better since common diseases affecting children are dealt with early."

Aim for monthly supervisory visits. Ideally, a supervisor monitors each CHW at least once a month, although this is not always possible. Group meetings with a supervisor should also occur monthly, when feasible. Regular visits to a CHW enable supervisors to

- detect trends in quality over time,
- replace medicine stocks as needed,
- establish quality monitoring as a routine event engrained in program activities, and
- help motivate community providers.

Supervision is particularly important soon after CHWs are initially deployed—ideally within the first few weeks after the training. Early supervisory visits provide an opportunity to support good practices, prevent bad habits from developing, and identify and overcome challenges that CHWs may encounter.

Distance, poor roads, rains, or periodic flooding may present challenges to monthly supervision. Anticipating such obstacles can help avoid the problems they can cause. For example, in South Sudan heavy rains transform some areas into massive swamps for up to six months of the year. The CCM team there traverses the water to interact with CHWs but also recognizes that sometimes it is impossible to reach a community. The team ensures that at every supervisory visit CHWs are provided with an ample supply of medicines, so that CCM does not come to a stop because supervisors were unable to complete a scheduled visit.

Plan for a facility-based provider as a supervisor, dividing time between supervision and case management. CCM supervision is difficult—but essential— work. Managers should identify and secure the resources needed to properly compensate this demanding full-time work.

Develop the supervision tools needed for quality assurance and plan to use the data for monitoring quality. Supervision tools allow supervisors to assess quality objectively. The application of a standardized checklist can improve the quality of supervisory visits by giving supervisors a way to record their observations and prompting them to complete all of the tasks that a supervisory visit should entail. The content of checklists should correspond to the CHW job description—the tasks that a CHW is expected to carry out. Supervision checklists are also one of two major sources of data to monitor quality in a CCM program. Checklists should be designed so that supervisors can record their observations in ways that can be compiled and compared from site to site, and across time. Figure 23 shows a supervisor's checklist and the corresponding indicators, which are then compiled in a CCM register.

FIGURE 23: SUPERVISORY CHECKLIST AND RELATED QUALITY INDICATORS, SOUTH SUDAN

Supervisor's checklist	Corresponding indicators	

CBD's Name: _____ Village _____
Date of Visit: / /
Month _____ NO; _____ M/F _____
1. **Patient Register**
 • Are all the names of the patients and villages recorded? ☐*Yes (Recorded)* ☐*No (not recorded)*
 • Are all sex, age, treatment given, and referral ticked correctly? ☐*Yes (completed)* ☐ *No (not completed)*
 • How many patients has the CBD seen so far this month? _____
  1. Number of fever malaria cases _____
  2. Number of diarrhea cases _____
  3. Number of pneumonia cases _____
  4. Number of referrals _____
2. **Drug Register**
 • Is the drug register filled out? ☐ Yes ☐ No
 (name, amount given out, amount remaining for each patient seen)
Correct amount of drugs given for each patient? ☐Yes ☐No ☐ N/A
 If not given correctly, what and how much did the CBD give out?
 _____
 • Physically count the amount of drugs left in the box:
  1. ACT amount _____
  2. ORS amount _____
  3. Zinc amount _____
  4. Amoxicillin amount _____
3. **Environment**
 • Proper usage of box ☐ Yes ☐ No
(box locked and in clean dry place, all equipment inside working correctly)
4. **Visit One Patient**
Did you visit one patient of this CBD? ☐Yes ☐No ☐ N/A
Ask mother if you can discuss the child seen by CBD: ☐Yes ☐No
Name of child _____
 1. How long had (NAME) been sick before you took him/her to CBD?
 ☐*Less than 24 hrs* ☐*More than 24 hrs*
 2. What symptoms did (NAME) have?
 ☐*Fever* ☐*Diarrhea* ☐*Respiratory* ☐*Other*
 3. What drugs did the CBD give you?
 ☐*ACT* ☐*ORS* ☐*Zinc* ☐*Amoxicillin*
 4. How many tablets did the CBD give you?
  • ACT amount _____
  • ORS amount _____
  • Zinc amount _____
  • Amoxicillin amount _____
 5. Correct treatment prescribed for Fever? ☐Yes ☐No ☐ N/A
 6. Correct treatment prescribed for Diarrhea? ☐Yes ☐No ☐ N/A
 7. Correct treatment prescribed for Pneumonia? ☐Yes ☐No ☐ N/A
 8 Did mother give drugs for fever correctly ☐Yes ☐No ☐ N/A
 9 Did mother give drugs for diarrhea correctly ☐Yes ☐No ☐ N/A
 10 Did mother give drugs for pneumonia correctly ☐Yes ☐No ☐N/A
 11. How is (NAME) now?
 ☐*better* ☐*same* ☐*worse*
 12. How old is (NAME)?
 ☐*Under 6 mo* ☐ *6-11 mo* ☐*12-59 months*
 13. How would you rate the CBD's work?
 ☐*Well* ☐*Mixed* ☐*Poorly*
 14. Supervisor's comments/complaints/problems
 _____
 _____
 _____
	Episodes of all illnesses treated by CCM (use)	# episodes of illness treated by CCM per 1,000 under-five population, per year

	Episodes of specific diseases treated by CCM (use)	# cases (treated by CHW at household & urgent cases referred by CHW)
	Availability of medicines	% CHWs with each medicine on day of supervision
	Medicine storage	% CHWs with medicines stored in a secure, cool, and dry location
	CHW correct case management	% CHWs correctly accomplishing core competencies
	Caregiver satisfaction with CHW services	% caregivers rating CHW as good or excellent

FIGURE 24: SUPERVISORY CHECKLIST IN HANDHELD ELECTRONIC DEVICE

In Southern Sudan, some supervisors use the same checklist shown in Figure 23 in an electronic data format, as shown in Figure 24.

Other data to monitor quality and use may also come from supervisory visits (or monthly meeting) when supervisors collect the reports prepared by CHWs.

Identify other supervisory responsibilities. By its nature, the role of a supervisor is one of authority because the supervisor oversees the work of CHWs. As such, it is important to clearly define the decisions that supervisors can make, the actions that they can take, and the reporting channels that they are expected to follow. Answering the following questions can provide guidelines for a supervisor's responsibilities and inform the job description.

 • How will the supervisor follow up with quality issues?
 • Will the supervisor address disciplinary issues? If so, how?
 • Who supervises the supervisor?
 • Who pays the supervisor?
 • How is the supervisor expected to report back to his supervisor?

Create a supervisors' job description with a profile and performance objectives. The supervisors' job description clearly communicates what a supervisor is expected to do, including the timing and frequency of visits and meetings, what data collection entails, and how feedback should be communicated.

Develop a supervisors' profile. To decide who the supervisor should be, list the qualities of an ideal supervisor. Consider, for example

 • the knowledge, skills, and experience the supervisor needs in order to carry out quality monitoring and support CHWs;
 • attitude toward and willingness to carry out community supervision;
 • attitude toward CHWs;

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- CHWs' and the community's expectations of a supervisor;
- managers' and coworkers' expectations of a supervisor; and
- other major responsibilities that could interfere or compete with supervisory responsibilities.

Table 18 lists several profiles for supervisors and possible advantages and disadvantages of each.

TABLE 18: ADVANTAGES AND DISADVANTAGES OF DIFFERENT SUPERVISOR PROFILES

PROFILE	ADVANTAGES	DISADVANTAGES
Dedicated supervisor hired by health facility	• No interference from competing priorities • CHW promotable to this job	• Cost is small, but needs to be sustained. • Role may cause confusion without clear link to the health facility. • Supervisor may not be clinically trained.
Health-facility staff assigned to outreach	• Dedicated to community activities • Clear link to the health facility	• May have competing priorities, such as immunization activities
Health-facility staff	• Receive referrals directly • Serve as direct connection between community and facility • May be aware of overall medicine stock	• Distracted by competing priorities • May feel threatened by CHWs
Dedicated NGO staff	• Time may be dedicated to CCM program.	• Expensive; operate outside of health system • Not sustainable

The job description incorporates the profile. Other items to include in a job description include

- specific tasks the supervisor performs,
- at least one measurable output for each task,
- a description of work conditions, and
- rules of conduct.

BOX 41: SAMPLE CCM SUPERVISOR JOB DESCRIPTION, SOUTH SUDAN[141]

Job Description: Child Survival Supervisor

Date:

Location:

Title: Child Survival Supervisor

Supervisor: Child Survival Officer

Specific responsibilities
1. Build an understanding within communities of the role of the community providers (community-based distributors, or CBDs).
2. Work with CBDs to mobilize the community to participate in the Child Survival Program.
3. Act as a liaison between the child survival officer and the communities.
4. Take the lead in arranging and carrying out the identification, selection, and training of CBDs.
5. Conduct monthly meetings with all CBDs of each clinic catchment area.
6. Conduct at least one visit per month to each CBD for monitoring and supervision.
7. Ensure proper dispensing and recording of medicines from each CBD.
8. Collect, verify, and submit monthly activity reports from each CBD and the local clinic. These reports must be submitted in personal data assistant (PDA) format, in a timely manner to the child survival officer.
9. Collect and submit monthly birth and mortality reports from each CBD.
10. Order necessary medicines from local clinic and distribute medicines to the CBDs.
11. Any other appropriate duties as requested by senior program staff.

Essential supervision actions
During a visit to a community provider, a supervisor should accomplish the following tasks.
- Travel to the home of the community provider.
- Review the provider's treatment register.
- Review the provider's medicine register.
- Observe the location and maintenance of the medicines in the provider's home.
- Look at the medicine contents to assess for stock-outs.
- Visit a randomly chosen (or most recently visited) child treated by the provider, and speak with that child's caregiver.
- Provide any immediate feedback to the provider, alone and in a quiet location where the provider feels comfortable.

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Train and orient supervisors, facility-based providers, and managers before training CHWs. Training is usually top-down, meaning that senior health workers receive training before the CHWs. "Bottom-up" training, starting with CHWs, can lead to problems when untrained senior health staff is unable to provide supervision and adequate support for cases referred by CHWs.

Training supervisors. Training supervisors should prepare them to provide technical guidance, support, and motivation to the CHWs. They need to

- be able to accurately perform all the tasks that the CHW is expected to perform so they can review and reinforce those skills on supervisory visits, e.g., counting respiratory rates, assessing fever, dissolving and giving cotrimoxazole tablets, counseling caregivers, making follow-up visits, and completing CHW monthly reports correctly;
- be familiar with all medications, correct dosages and materials for resupply;
- be familiar with reporting and recording mechanisms to accurately reflect the CHWs' services, including tallies of medication and supply needs, and carry these to the higher level for collation with other CHW reports;
- develop skills in giving feedback to help improve the CHWs' performance; and
- be able to support the CHW to conduct community-level meetings and negotiate with local leaders and community members to mobilize support for CHWs, improve understanding of the program, and provide feedback about children treated.

Supervisors also need to understand the goals and objectives of CCM. Presenting information on the need for CCM and experiences in other countries may help both supervisors and the CHWs they supervise feel greater pride in their contribution to broader goals.

Training or orientation for other personnel. The links between CHWs and other levels of the health system (e.g., facilities, district offices) determine which other cadres require training or orientation. In addition to supervisors, the following personnel may need training.

- Providers at referral facilities may need training or refresher training in IMCI to ensure that they also deliver quality care to sick children and understand their role in working with and supporting the CHWs and the referral system.
- The individuals responsible for medicine and supply management may need orientation to their roles and any new or adapted logistics guidelines for CCM medications and supplies.
- Managers in the health system, whether it is run by the government, NGOs, or private retailers, should be prepared to support the community-based treatment provided by the CHWs.
- Other cadres—from TBAs and local leaders to pharmacists and private medicine sellers—may benefit from an introduction to the CCM effort, in order to create awareness and foster a supportive environment.

Possible topics for such training or orientation include the following.

- for providers: in addition to clinical skills in IMCI, interpersonal skills such as how to ask open-ended questions, avoiding leading questions, controlling for dominant behavior, and giving positive feedback
- for managers: introduction to and examples of community mobilization and corresponding outcomes used in other programs or parts of the country, what can be borrowed or learned from other community-based initiatives, such as community-based distribution of contraceptives, social marketing of insecticide-treated bed nets, and home care for HIV/AIDS
- for all groups: developing understanding and agreement on the goals and objectives of CCM and their roles in it

Plan CHW training based on the CHW responsibilities (job description)

Appropriate use of the algorithms and charts based on case management guidelines is the core of CHW training. A good training experience will also motivate, inspire, and stimulate the CHWs and encourage them to take responsibility to provide quality services in their communities.

Set up a training team that includes supervisors and CHWs, if possible. Managers should name a team responsible for planning and conducting CHW training. The team may include qualified trainers from the formal health system, NGOs, and/or professional organizations. Involving CHW supervisors, providers from first-level referral facilities, and CHWs can ensure that the training is relevant and specific to the situation and conditions in the program area. The team is responsible for designing the training content and format, developing a training calendar, making and carrying out administrative and logistical arrangements, and preparing those who will conduct the training.

> **Box 42: Facility-based providers as trainers strengthen links with the community and improve the quality of supervision**[25]
>
> In Kwale, **Kenya**, having the immediate supervisor of the CHWs participate as a trainer helped to improve the quality of supervision after training and strengthened the links for referral within the formal health system. In **Honduras**, including MOH personnel as facilitators of trainings was crucial for the sustainability of CCM activities, especially because referral plays an important role. This improved the formal connections between the community and the facility, and the CHWs and MOH staff developed personal relationships, thus gaining a better understanding of the roles, responsibilities, and skills at both levels of the program. The facility-based providers increased their appreciation of the CHWs.

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Use the CHW job description to define the learning objectives and develop assessment tests. The CHW job description (Section IV, "Increasing Access") is the basis for determining the scope, content, and objectives of the training. The job description defines the specific tasks that the CHW should accomplish. Analysis of each task produces a description of the knowledge and skills required to perform the task. These can then be converted into learning objectives. For example, to accomplish the task "assess childhood illness," the CHW must know which questions to ask the caregiver and which signs to observe. The CHW also needs the ability (skills) to identify chest indrawing and measure breaths per minute. The corresponding learning objectives for knowledge could be that the CHW be able to state all eight questions to ask a child's caregiver. The objectives for skills could be that the CHW can demonstrate how to accurately count breaths per minute within three breaths.

The learning objectives of the training—knowledge and skills— are also the basis for assessments of CHW competencies and the effectiveness of the training. Formal pre- and post-testing, either written or verbal, depending on CHWs' literacy levels can determine changes in knowledge. Mastery of skills in assessment, classification, treatment, record keeping, and counseling is a critical objective of training. Trainers can use (or expand) the supervisor's checklist of skills or competencies to observe trainees. Introducing CHWs during training to supervisors' methods for tracking quality strengthens the coherence of quality monitoring systems.

BOX 43: USING TRAINING OUTCOME ASSESSMENT TO SELECT CHWs FOR CCM

In a program in **Kenya**, CHWs first participated in an initial five-day training on the elements of primary health care and their role as health promoters. Managers selected a subset of these trained CHWs to receive an additional five-day integrated CCM training, based on their competence observed during the initial training and follow-up.

Community-based programs in **Madagascar** use a three-tiered approach. The community selects CHWs for the first tier—awareness-raising. All CHWs receive this basic training. Trainers then choose those suitable to move to the next level—CCM and awareness-raising. Some of these CHWs are subsequently trained to be "third-tier CHWs," providing CCM, awareness-raising, and community-based distribution of contraceptives.

Address the CHWs' particular situation in planning. Many factors specific to the program area and the CHWs' characteristics affect the training design—the approach, the location, the timing, and the composition of the group. A quick assessment of trainees' background, knowledge, and skills may be helpful if the established criteria for selecting CHWs (see Section IV, "Increasing Access") were very broad, or if they were not fully met, for whatever reason. Factors affecting the training design are discussed below.

CHW literacy levels and health background and experience. Managers must decide whether to hold separate trainings for literate and nonliterate CHWs or to hold joint trainings. If resources allow, separate training enables trainers to focus on each group individually and proceed at different speeds. However, in mixed groups, trainers can encourage the more literate CHWs to act as junior trainers, leading the review of certain lessons and explaining concepts. This helps to decrease the gap between the trainer and the trainee and increase the self-esteem of the CHWs.

In most settings, CHWs will already have some background in C-IMCI or another community-based health approach. In such settings, it may be possible to conduct on-the-job practical training, where qualified mentors can work side-by-side with CHWs to give them guidance, building on their theoretical knowledge. This would make it easier to find cases, as the mentoring would probably be conducted in a clinical setting.

However, some CHWs may not have a background in health or C-IMCI. Again, managers must weigh the advantages and disadvantages of joint or separate trainings. Joint trainings can refresh existing CHWs' knowledge and skills while involving them in orientation of their more novice colleagues. CHWs with no background in health require a combination of classroom activities and practical training with real cases.

CHWs' ability to travel or be absent from their homes. CHWs may live in rural communities where it is difficult to travel long distances or be absent from their homes for extended periods of time. Ideally, the training venue should be in a central location, making equal travel time for all CHWs. Typically, this is the first-level health facility, which is both convenient for trainers and is likely to have real cases for clinical practice.

The training also needs to be scheduled at times convenient to the CHWs. CHWs' responsibilities for agricultural and household work, busy planting or harvesting seasons in rural areas, and seasonal heavy rains that restrict access to certain areas are concerns to take into account. Some programs provide training allowances to compensate for lost earnings and time. If the CHWs have their own businesses, then the trainings may need to be scheduled at flexible times, such as early mornings or weekends, to accommodate their needs.

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CHWs' language or dialect. In some rural settings, language differences between the trainers and the CHWs can present problems. Use of the local language for training can improve CHW performance, particularly in counseling caregivers. Whenever possible, trainers who speak the local dialects should conduct the training. When this is not possible, CHWs with the necessary language skills can help to bridge the gap. It is generally necessary to allow additional time for training when interpretation and translation are required.

Plan for clinical, "hands-on" as well as classroom training. Ideally, CHWs always have the opportunity to examine real children as part of training. The effectiveness of training without clinical cases is not established, but supportive materials such as videos and photos can be helpful. However, training that includes real clinical experience can be costly.

In planning for clinical training, the team should answer the following questions.
- Will the training site offer easy access to actual cases for the CHWs to practice assessment and classification?
- If not, is it feasible to transport the CHWs to a nearby hospital or clinic for the clinical sessions but conduct the classroom sessions in a different setting, such as a schoolroom or local meeting hall?
- Is it culturally and financially reasonable to keep the CHWs in a more urban setting for part of the training to increase access to real cases?
- If practical training is to be held at a hospital or clinic that is not part of the CCM effort, what arrangements are needed to ensure that the CHWs have access to cases and are welcomed by staff?

Box 44: Clinical training in different venues

In **Haiti**, CHW training skills in assessing and treating pneumonia was best done in the community where the care would be given, rather than in a hospital. This helped to establish the strategy in the CHWs' locale, while at the same time engaging the community.

In **Nepal**, managers were concerned that holding the training at the district level would not provide enough cases for CHWs to see, as the district hospitals were small. They chose zonal hospitals for practical training. However, when trainings were conducted in both locations, the competency of CHWs trained in smaller district hospitals was as good as or better than that of CHWs trained in larger zonal hospitals. This suggested that either enough cases were available in the district hospitals or that the video and alternative case management exercises used were effective learning techniques.

Aim for groups of no more than 20 trainees and one trainer for every 5 CHWs. The situation analysis and the desired population-to-CHW ratio should determine the number of CHWs requiring training. Geography, access, resources, and the CHWs' situations will affect decisions about how many CHWs to train

in total, and how many CHWs to include in each group of trainees. For the most effective interaction and discussion, the training group should not be too large—ideally including no more than 20 trainees.

Box 45: Small groups and low trainer-to-trainee ratios

In **Haiti**, a phased-in competence-based program for CCM was used after most other maternal and child programs were functioning well. In these areas, resident CHWs with a seventh-grade education received classroom training in groups of 15–20 and practicum training with a ratio of one instructor for every 5–6 CHWs. Field practicum training occurred periodically for nearly one year.

In **Nepal**, in a setting where many of the CHWs have low literacy and limited formal education, trainers found that the ideal maximum number of trainees per group was 18, with a trainer-to-CHW ratio of 1:3–4.

Box 46: Training tips for key competencies

Pay special attention to ensuring CHWs are able to correctly assess chest indrawing (intercostals retractions)

Introduce counting respiratory rates in steps
Learning to accurately count respiratory rates is a skill that requires much practice. Typically, trainers introduce the skill in the following steps.
1. Demonstrate the sign of fast breathing; reinforce with visual aids.
2. Familiarize the CHWs with the use of the clock, watch, or timer.
3. Remind CHWs to assess respiratory rate and chest indrawing first through "asking" and "looking." Avoid examining the child (i.e., touching to assess fever or other sign) as this can upset the child and making counting respiratory rates difficult.
4. Use a video for initial practice.
5. Ask the CHWs to practice counting respiratory rates of people in their homes or other trainees.
6. In subsequent sessions, practice with any child under five, under the supervision of a trainer.
7. Continue to practice counting until every CHW is comfortable and capable of correctly counting the rate.
8. Conduct role-plays where CHWs incorporate counting respiratory rate into the complete assessment of the sick child.
9. Introduce counting respiratory rates with real, sick children.

Allow sufficient time to introduce and practice counseling skills, including use of counseling cards and mothers' reminder materials (see Section VI, "Increasing Demand").

Ensure that CHWs master record-keeping competencies. Accurate recording is very important for monitoring, for sharing program activities with communities, and for having the data to convince decision-makers that CCM is safe and effective.

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Apply principles of adult learning and select participatory methodologies. Principles of adult learning hold that "adults learn best from experiential learning—direct experience enriched by discussions, explanations and/or demonstrations—in an environment that is non-threatening and conducive to building a community among the learners."[142] Learners' (or trainees') opinions and experiences can enhance the learning process and should be acknowledged and respected. Introducing skills that CHWs can use immediately can increase their motivation.

Learning-by-doing, through active participation and practical sessions, is an important approach to successful training. Discussion and other activities that are both educational and entertaining should complement it. The toolkit at the end of this section contains an annotated list of valuable participatory training methodologies for CHWs.

Box 47: Interactive and entertaining training methodologies

In **Nepal**, many different approaches have been used to make the trainings for CHWs more interactive, participatory, and entertaining. Role-plays for all scenarios, e.g., assessment, examination, counseling, providing medicines and referral advice, has been very useful. Initially, two trainers conduct a role-play, then one trainer and one CHW, and then two CHWs. This can be done in front of the whole group or in smaller groups to allow all CHWs to get adequate practice in a nonthreatening setting. Skits, dramas, games, songs, and dance are used to reinforce messages. Popular local songs with the lyrics changed have been appealing and easy to remember.

In **Haiti**, contests are held for the development of songs using standard messages, a popular activity among CHWs. These songs, along with skits about symptoms, treatments, and follow-up, are also well received at health fairs to provide education to the community.

There are many excellent resources for adult learning and examples of training methodologies used by successful community-based programs. The toolkit contains examples of training curricula and other resources for CHW training.

Determine the duration of the training after considering all of the above. Decisions about how long the training should be—and whether to conduct it in a single period or in a series of sessions—require analysis of the CHWs' background and experience, their previous training, their practical skills, their knowledge, logistical issues, and the competencies they are expected to master as well as the nature of the CCM effort.

Some programs use a phased or sequential approach to introducing interventions. For example, they start with management of diarrhea and the necessary skills to manage a sick child, and then add other interventions (e.g., management of malaria) some months later. Phased training is acceptable. However, this may present logistical challenges for the trainers who may not be able to budget for several visits or for programs using integrated treatment guidelines.

Box 48: Different training approaches in different programs

In **Ethiopia**, the CHWs (health extension workers) have at least a 10th-grade education and six months of basic training in primary health before beginning work in CCM. The CCM training package covers management of pneumonia, malaria, diarrhea, immunizations, nutrition counseling, and identification of danger signs in the neonate. Training occurs over a period of five days, including practical sessions.

In **Haiti**, nurses and CHWs receive training on a complete CCM package before the community learns of the new program and is encouraged to seek care. Once community mobilization begins in earnest, involving many community-based organizations, the CHWs need to be ready and equipped to receive sick children. In some cases, CHWs and their supervisors conducted special "rally posts" to ensure that CHWs had absorbed the theoretical and practical learning to correctly assess and treat children.

In the ANKUR project of home-based newborn care (HBNC) in Maharashtra, **India**, CHW training was a total of 31 days, given in seven workshops spread over a 12-month period. Each workshop was three to five days long. After each workshop, the CHWs practiced newly learned skills in their communities with support from a supervisor. This opportunity to learn, practice, and build on skills is a cornerstone of the HBNC training package.

In **Nepal**, training for CCM of pneumonia is three and a half days. Immediately following this training, there is a half-day orientation for local leaders and a one-day Mothers' Group Meeting where the CHW, with her new skills, is introduced to community. About two months after this initial training, the CHWs have an additional two days of training, which reviews the knowledge and skills needed for pneumonia case management and introduces additional disease areas. At this time, training includes management of dehydration with ORS, counseling on feeding problems, the importance of immunizations, and how to identify and refer neonatal danger signs.

Ensure that the tools that CHWs will use are ready before conducting training. Training in correct use of record-keeping forms, counseling cards, and home-based reminder materials is an essential part of the training. Before printing these tools and conducting the training, it is important to allow time for proofreading, pretesting, and revision.

In addition to CCM tools, CHWs typically appreciate items that identify them as CHWs to the community and help them carry out their responsibilities, such as

- identification cards;
- carrying bags for manuals and materials;
- torch, gumboots, and umbrella; and
- appropriate garments with program logo or equivalent.

Prepare or obtain additional training materials as needed. Training materials usually include

- timing device (watch, clock, or UNICEF respiratory timer);

- thermometer, when CHWs are expected to use them;
- laminated treatment flow charts/algorithms;
- CHW handbook or manual;
- medications, with cup and water for dissolving tablets;
- sick child recording form;
- referral form;
- medication control form (stock card);
- counseling cards;
- home-based reminder cards for caregivers;
- videos, posters, photographs, or other graphic tools that portray signs of illness and danger signs;
- storage box for medications;
- notebooks and pencils for trainees; and
- trainee and trainer name tags.

In some programs CHWs complete monthly morbidity forms, death certificates, or both, and in these situations the forms should be available for training. However, in most programs, these are part of the supervisor's checklist or local government authorities are responsible for them.

Planning for training should also consider the time needed to transport training materials (and related equipment, such as video players and monitors) to the training sites, together with the recording and reporting forms, medicines, and supplies.

Anticipate potential problems to avoid them.

Problems with logistics. Problems that disrupt the smooth flow of training are often related to training logistics and administration. Planning should include:
- the amount of per diem and the distribution of per diem;
- reimbursement for other costs, such as travel and income loss;
- refreshments and food;
- childcare for trainees, especially those who are breastfeeding; and
- electrical power for showing videos; availability of generators.

It is difficult for a trainer to also have responsibility for all the logistics of training. Whenever possible, a logistics assistant should be assigned.

Issues related to social standing. CHWs with limited literacy skills or those considered to be of lower social status may face difficulties speaking in front of a group or grasping new concepts quickly. Trainers should be sensitized to these possibilities in advance and coached on how to be inclusive in their style so that CHWs do not feel belittled or humiliated.

Assess CHW competencies during and after training. Assessment of trainee competencies should occur at several points during the training. This helps to identify the CHWs who need more guidance and coaching before they return to

their communities. Immediate follow-up supervision at the CHWs' workplace may also be needed to reinforce skills. Some programs require that CHWs be certified by passing a final exam, which includes assessment of both practical skills (e.g., clinical and record-keeping) and knowledge (e.g., a written test). Others require period recertification.

Develop a training information monitoring system. A training information monitoring system helps managers to track who has been trained, as well as when, where, and by whom. During the planning phase, a format can be developed and sent out with training materials to the venues, with instructions on how to complete and submit this information.

Conduct trainings after all planning activities are successfully completed. Ensuring that all arrangements are confirmed and all materials are ready for the training contributes to a successful training experience and builds trust with CHWs and their communities and CHWs. Before learning begins
- explain all administrative issues, such as per diem, meals, etc.;
- conduct an icebreaker or similar warm-up exercise to set the tone and familiarize trainees with each other;
- ssk the trainees to set their own "ground rules" to enable them to have some ownership over the training conditions and maximize their ability to learn (common ground rules include starting and ending on time, providing a penalty for tardiness, taking turns when speaking, and allowing only breastfeeding mothers to bring children to the classroom); and
- ensure that all participants have nametags—trainers' ability to personally identify CHWs makes the latter feel important and recognized.

Monitor the quality of training and build linkages with related organizations. To ensure consistent quality of training at all sites, master trainers or program-related staff should visit all training venues and monitor quality and give on-the-spot feedback, as needed. Sharing the training schedule with the staff of related organizations and individuals, inviting and encouraging them to observe and support the trainings, gives a morale boost to both the trainers and the participants.

Follow up after training. Trainers often conduct the first supervisory visit, together with the supervisor (if they are different people). Ideally, this visit takes place within the first few weeks after completion of the training, as it allows CHWs to practice new skills under the supervision of their trainer.

Plan for training transferred or replaced CHWs and other health workers. As the program matures, some CHWs may leave or be transferred or unable to carry out their duties. Similarly, there may be turnover of facility-based staff and supervisors. Training and orientation will be needed for any workers who are new to the program.

Plan for regular refresher trainings. CHWs need refresher trainings to review and update knowledge and renew skills. These may be conducted in conjunction with meetings with supervisors or together with training that introduces new skills, such as using a different medicine for treatment of malaria or a new community-based intervention such as RUTF.

Engage the community in improving the quality of CCM programs

As discussed in Section III, "Enabling a Supportive Social and Policy Environment," community management structures working together with CHWs can have an important role in monitoring and improving the quality of CCM. Quality-related issues that can be addressed through this mechanism include

- community perceptions of quality of both CHW and facility services: strengths and weaknesses (e.g., availability of medicines, access to the CHW or health facility, interpersonal relationships, etc.);
- problem-solving (e.g., advocacy for adequate supplies or more supervision; establishing feedback mechanisms between the facility and the community);
- community mobilization for prompt recognition of danger signs and care-seeking; and
- celebration and recognition of the CHWs—public praise for a job well done contributes to maintaining good quality.

Participatory methods such as partnership-defined quality[137] can be adapted to CCM, linking quality assessment and improvement with community mobilization (see toolkit).

Monitor quality and use the information to improve the program

Supervision checklists are the major source of quality data in CCM. Findings from checklists for individual CHWs allow supervisors to identify persistent problem areas and track improvements. Compilation of checklist data allows managers to identify progress and problems with the program. Figure 25 is an example of how supervisors compile monthly data on the quality of CHW case management. (This is a partial compilation form. A full form contains all items from the supervisor's checklist.)

FIGURE 25: EXAMPLE OF SUPERVISOR COMPILATION OF QUALITY OF CASE MANAGEMENT[80]

Supervisor's monthly compilation			
Supervisor's name:			
CHWs supervised:			
CHW 1:			
CHW 2:			
CHW 3:			
Etc.			
Month:			

Checklist item number	Case management competencies	Number Yes	Number No	Comments
	Ask patient identification			
	Assess general danger signs (all)			
	Assess (consecutively AND completely)			
	Count respiratory rate			
	Classify (correct)			
	Treat (correct medicine AND dose AND duration)			
	Counsel (correct card AND all messages)			
	Counsel (probe for questions AND mother repeats instructions)			
	Counsel (arrange for follow-up visit)			
	Refer (for correct indication)			
	Refer (facilitate as needed: cash, child care, transport)			
	Complete register (all relevant boxes in the row)			
	OVERALL CORRECT CASE MANAGEMENT?			

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The compiled data from each supervisor is further compiled for a full description of the quality of case management in the program, as illustrated in Figure 26.

FIGURE 26: QUALITY OF CCM BY DISTRICT (OCT.–DEC. 2007)[80]
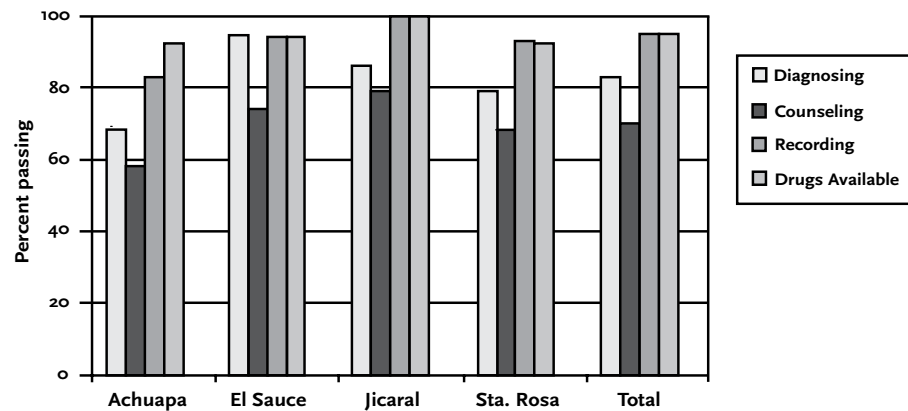
*n = 64–280 total observations; 12–107 observations in any municipality

The data suggest that counseling is the weakest skill area among all CHWs, followed by diagnosing (correct assessment and classification). Training and supervision efforts should be directed at reinforcing these skill areas, especially in Achuapa.

BOX 49: MONITORING STOCK AFTER THE RAINS[89]

"In January, I traveled to Pachak, (**South Sudan**), which has been cut off by rains for the past six months. After the rains, it is now accessible. The senior supervisor and supervisor for Pachak joined me during this visit.

"It was my first visit since the rains began in May, and I wanted to find out about the medicine stock register and the CHWs. I also wanted to ensure the good quality of care in our CCM program. We also planned to visit one of our CHWs.

"The four main medicines that the CHWs use are ORS and zinc for diarrhea, ACT for malaria, and amoxicillin for pneumonia.

"Checking on the stock, I found the supervisor, who receives and issues the medicines to CHWs, had a well-kept stock card to show his records. He had enough stock of the four medicines to last two months at the current rate of utilization."

Monitor supervision. Managers need to track supervisory visits, both the number of supervisions and the results of the supervision. Without a system to track supervision, it becomes impossible to detect problems, and the intensity and quality of supervision is likely to drop off rapidly. Often simply counting the number of supervisory visits conducted is enough to ensure that they get done.

Other sources of quality data. Other sources of information, such as meetings of clinic workers or letters from communities, may provide information on the quality of CCM. For example, some communities opt to form associations of CHWs. These associations both support CHWs and serve as a means of feedback. Documentation and observation of community meetings also give evidence of the perceived quality of services.

Include quality indicators in any planned household surveys. Many programs conduct household surveys to measure results. Although the most pertinent data regarding quality of CCM can be obtained from supervisory records and other data sources, household surveys should also address quality, including satisfaction with CHW and referral facility services. Indicators of demand, such as percentage of households adopting behaviors (e.g., prompt care-seeking) are indirect indicators of the quality of CHW services.

Use data on quality to influence investments in expanding CCM. Managers should share data on quality with decision-makers on an ongoing basis. This not only helps to ease concerns they may have about CHWs' ability to assess and treat sick children, but it also lays the groundwork for scaling up CCM.

Toolkit: resources for increasing the quality of CCM

Sample job descriptions

Assess, classify and identify treatment of a child with cough or difficult breathing, diarrhoea or undernutrition. WHO, UNICEF, CARE, n.d.

Case management checklist. CARE Kenya, Siaya Child Survival Project (1997–2001).

Edward-Raj A, Phiri RK. *Assessing the functionality of job aids in supporting the performance of IMCI providers in Zambia*. Operations Research Results 2(8). Published by the Quality Assurance Project (QAP) for USAID, 2002.

(Facility) IMCI chart and sick child recording forms. WHO and UNICEF, undated.

Sample training curricula

Caring for the sick child in the community. WHO Department of Child and Adolescent Health and Development, CAH@who.int, attention B Daelmans, C Wolfheim, or the Health Program Division of UNICEF, attention A George, ageorge@unicef.org.

Community case management training guide. MOH of Nicaragua, Health Services Office, Community Health and Nutrition Program. 3rd edition. Save the Children, BASICS, and USAID in collaboration with the Ministry of Health, Nicaragua, 2008.
    This guide includes two sections: one for training CHWs and one for training health personnel who will establish and manage CCM and supervise CHWs.

CRS Training Kit

Integrated management of childhood illness: Training materials for CHWs in India, including provision of ORS for diarrhea and antibiotics for pneumonia. WHO, UNICEF, and CARE.

- Course director's guide
- Trainer's guide
- Learner's guide
- Photo booklet

Nepal ARI trainers guide. JSI and Nepal MOH, n.d.

Training materials

Audio Visual CCM Training Materials from WHO and UNICEF

WHO and UNICEF have prepared videos on danger signs for many childhood illnesses. UNICEF also has videos for neonatal health, which demonstrate very good models of caregiver counseling, relevant to any illness. Trainers should view the videos in advance several times and consider how to use them appropriately. It may be possible to dub the video into the local language, or the trainer may do the narration. Copies may be obtained from WHO and UNICEF country offices.

Participatory training methodologies for CHWs

Role-plays: Trainers can demonstrate assessment, dispensing, counseling, and other skills. Participants then practice with trainers and with other trainees until they gain confidence and competency. Supervising the role-plays provides an immediate opportunity to correct any mistakes and reinforce appropriate techniques.

Songs and dances: Popular local songs with the lyrics changed to match the training theme can teach specific messages or function as memory aids.

Repetition: Repeating important facts, in different and creative ways, such as through rhymes or songs, helps CHWs retain information. Consistent patterns for assessing danger signs, reinforced with pictorial memory aides, help CHWs memorize and retain the most critical information.

Wall charts/enlarged training tools: Enlarged replicas of recording and reporting forms (preferably on laminated materials) allow participants to practice in filling out forms for hypothetical cases with the whole group. Having one participant come forward in front of the class allows everyone to see what is being done and give feedback. Similarly, enlargement of other tools, such as classification cards, can help the whole class focus attention and review together.

Games: To allow practice in the classification of childhood illness, give photos or pictures of danger signs to the participants and ask them to place them on the correct colored background. Danger signs—for children requiring immediate referral—are placed on a red background. Photos that depict signs of a sick child who can be treated by the CHW are placed on a yellow background. Signs that indicate "no problem found" are placed on a green background.

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Section VI:

Increasing Demand for CCM Services and Related Behaviors

Overview and definitions

High demand for CCM services and related household behaviors can have a direct influence on impact and community support for CCM and therefore the will to sustain activities.

Household practices and good quality CCM produce appropriate demand. Community members usually place high value on curative services. Awareness of the availability of a new and convenient source of treatment for childhood illness—the CHW—generates demand for CCM. However, increasing caregivers' knowledge of a CHW's role in CCM is insufficient to ensure that demand and subsequent use contribute to the goal of improved child health. Key family practices—timely care-seeking and effective home management of sick children—are also essential. While C-IMCI typically promotes both practices, CCM includes CHW counseling of caregivers on adherence to treatment, good nutrition, palliative care, and sometimes referral. Together, these actions help caregivers to more rationally demand CCM services, prevent CHWs from becoming overloaded,[143] and foster effective and efficient use of CCM treatments.

Sample indicators of demand for CCM services and behaviors. Table 19 provides examples of indicators of demand that programs with CCM have used. Some other possible indicators of demand are also indicators of quality and use of CCM. For example, the treatment adherence ratio (the number of caregivers completing treatment as instructed by the CHW/the number of treatments by the CHW, expressed as a percentage by worker, by supervision unit, or by program) indicates how well the CHW provided support and instructions and also represents correct use of CCM services.

TABLE 19: SAMPLE INDICATORS OF DEMAND FOR CCM SERVICES AND RELATED BEHAVIORS[83]

INDICATOR	DEFINITION	SOURCE OF DATA	FREQUENCY OF COLLECTION	POINT PERSON	COMMENTS
Household or caregiver knowledge of danger signs	% caregivers knowing two or more illness signs (as locally defined)	House-hold survey	Baseline & endline or annual	Manager	
Household or caregiver knowledge of source of CCM services	% caregivers knowing name of CHW providing CCM	House-hold survey	Baseline & endline or annual	Manager	
Household or caregiver satisfaction with referral facility	% caregivers rating referral facility good or excellent	House-hold survey	Baseline & endline or annual	Manager	Also indicator of quality

Strategies, interventions, and activities to increase demand

Review the findings of the situation analysis. The situation analysis or other formative research reveals those factors that may have the most effect on the demand for CCM, particularly those determining recognition of illness and decision-making about care-seeking. Factors that affect caregivers' abilities to complete referrals to facilities in cases of severe illnesses also have an impact on demand.

Adapting existing C-IMCI efforts. Ideally, CCM builds on an existing community health promotion strategy that encourages the 16 family practices for growth and development, disease prevention, home care for illness, and care-seeking for danger signs (see tip below). Existing C-IMCI activities require adjustments or additions, so that community members know when and how to seek care from CHWs. For example, existing C-IMCI materials may encourage caregivers to go directly to a health facility when a child is sick. New messages and materials prompting caregivers to seek a CHW are needed to replace outdated ones (see also Section I, "Introduction," on CCM as the treatment arm of C-IMCI).

Increasing knowledge and acceptance of CCM services. Community members and caregivers need to know that there is a new health resource in the community—a CHW trained to provide treatments—and that the services

provided are of good quality. The success of CHWs' work in CCM depends on the community's knowledge of the conditions addressed by CCM and realistic expectations about what can be provided.[20] CHWs need to continue to deliver education on recognition of illness, knowledge of danger signs, and the importance of prompt care-seeking.

Supporting caregiver behaviors through counseling. CHW counseling of caregivers during initial consultations and follow-up helps to ensure that family members of sick children are able to implement treatment regimens and practice key household behaviors to the best of their ability. Caregiver behaviors affecting demand include[2]

- illness recognition,
- treatment in home,
- use of competing sources of care,
- care-seeking outside home, and
- correct administration of treatments and/or adherence to referrals.

Create a high level of awareness of CCM and the CHWs

Work with the community management structure to introduce the CHW and his or her new capacities to the community. Even in communities where the CHW has been engaged in promoting key household and family practices for some time through C-IMCI, community members and caregivers need to know that "one of their own" can provide treatment for certain conditions.

Community management structures and CHWs play an important role in creating knowledge of CCM. CHWs with the support of community management structures tend to have stronger relationships with the community, that is, more credibility and greater "ownership." Other communication channels (e.g., radio) can be used to create awareness, but person-to-person contact through the interaction of community members with CHWs, community leaders, and facility-based staff is likely to be the most sustainable. Maintaining awareness of the program may take little extra effort once it has been established. Satisfied "customers" can be powerful allies to alert neighbors.

> **BOX 50: AUTHORITIES PRESENT** *DISTRIBUTEURS* **TO THEIR COMMUNITY**
>
> Community members selected the CHWs for CCM in **Rwanda**. Once the CHWs were trained, public authorities convened meetings and explained the *distributeurs'* responsibilities to the community. In some areas, house-to-house visits were also conducted to announce the new services.

Use behavior change communication (BCC) principles to develop and/or adapt activities to promote household and family practices. Ideally, CCM builds on an existing C-IMCI platform, including promotion and mobilization of preventive behaviors. Sometimes, CCM will be introduced concurrently with the broader C-IMCI strategy. Whether working within an ongoing effort or launching a new one, fundamental BCC standards should be applied in the design or adaptation of BCC activities.[144,145,146] These include

- conducting formative research to learn about caregivers' perceptions of illnesses, and current care-seeking and home-based care practices;
- analyzing the factors favorable to the adoption of the promoted practices and the barriers to their application;
- selecting and designing interventions that will help overcome barriers to the adoption of promoted practices or that will strengthen their adoption;
- aiming interventions at the "right" participant (target) groups, including people who can influence the behaviors as well as those who are expected to carry them out;
- ensuring that the messages and interventions are context-specific and address the issues of who, how, when, how often, and where;
- working closely with stakeholder groups throughout; and
- designing and implementing monitoring systems for BCC.

> **Box 51: Care groups: a community strategy improves care-seeking and reduces morbidity and mortality[147,148]**
>
> Care groups are a community-based strategy that uses a network of volunteers to link together groups of 10–15 households with women of reproductive age and children under five in a supportive structure (Figure 27). Initiated in **Mozambique** by the NGO World Relief, the strategy now operates in several countries to support CCM. "Lead mothers" visit households in their care groups and also convene meetings, where the leader encourages preventive behaviors, early recognition of illness, and prompt care-seeking. The group leaders have close links with CHWs, who provide treatment to sick children as well as training, support, and supervision to the leaders and their groups. Substantial decreases in morbidity and mortality have resulted in the areas where the care group strategy is employed. In Mozambique, child mortality declined by 62.2%, and infant mortality declined by 65.8% in the first three years of the program. The proportion of children 6–23 months who had moderate-to-severe stunting decreased by 40%, and treatment-seeking for suspected pneumonia within 24 hours rose from 2% at baseline to 60% at endline.

Effective counseling techniques foster and reinforce caregiver behaviors

CHWs serve as a personal source of information, support, and individualized communication at the household level when they perform consultations and follow up with families.

Figure 27: A care group in Mozambique[149]

Good counseling is interactive and responsive to caregivers' needs. Rather than being the didactic delivery of instructions, good counseling is a dynamic discussion that helps caregivers understand and adhere to treatment regimens and home management, and ask questions and solicit help. Unlike a group discussion, counseling involves very few people—the CHW, the caregiver, and perhaps a few family members. Counseling has the following characteristics.

- The CHW establishes positive rapport with the caregiver. The CHW is open, patient, and approachable.
- The CHW and the caregiver exchange ideas, discuss potential challenges, propose solutions, and collaborate together.
- Caregivers feel comfortable raising questions and seeking advice from CHWs.
- Caregivers feel supported and confident in their ability to properly manage and treat their sick children in the home.
- The CHW spends less time telling and much more time asking, assessing, listening, encouraging, and clarifying.
- The CHW gives positive feedback, encouragement, and praise.
- The CHW avoids negative or disapproving reactions to caregivers' concerns.

Develop and train CHWs to use home-based reminder materials[140] to reinforce counseling. Materials, such as job aids, diagnostic forms, pictures, and counseling cards help CHWs remember all of the information to give caregivers during a consultation and prompt them to ask about key practices. Prepackaged medicines with pictorial instructions such as those used in Rwanda (Section IV, "Increasing Access") are also counseling materials. Counseling materials also make information more interesting, understandable, and memorable to caregivers.

Findings from the situation analysis or other formative research are used to adapt generic technical information and develop new messages and materials that are culturally specific, relevant, and suitable to caregivers and CHWs. Both qualitative and quantitative research methods can yield helpful information for message and

materials development, and may be used together. Key informant and in-depth interviews, case studies, focus group discussions with community members, trials of improved practices, and household surveys are among the methods frequently used. Often countries have conducted relevant formative research, particularly where C-IMCI (without CCM) is already in place.

Messages may incorporate local examples or proverbs to make them even more meaningful. Draft messages and materials are pretested in the community to ensure their local appropriateness and clarity before they are produced. Examples of useful drawings include a sun to symbolize daytime or a moon for nighttime to show when to give medication, a numeral for how many times a day, and a food dish when food should accompany the medicine. Pretesting involves presenting the materials to community members, who give feedback about their comprehension and response to the messages to determine if messages are correctly understood, accepted, and liked by the community, or if they need to be modified.

The toolkit at the end of this section contains *Guidelines for developing home-based reminder materials: helping families save sick children,*[140] which outlines the steps to prepare counseling materials.

BOX 52: DEVELOPING COUNSELING MESSAGES FOR TREATMENT OF CHILDHOOD DIARRHEA WITH ZINC

In rural **Mali**, formative research on community perceptions and practices about the management of diarrhea in children found low use of ORS and poor understanding of dehydration. Caregivers had very little confidence in the ability of ORS to alleviate diarrhea and believed that another medicine, such as an antibiotic, was necessary to treat the illness. These findings informed the development of counseling messages and materials for CHWs to promote the use of ORS and zinc for treatment of diarrhea. Counseling messages stressed the ability of zinc to "complete" the use of ORS for treatment of diarrhea and highlighted the rationale for administering the full 12-day course of zinc. Counseling cards illustrated the concept of dehydration by portraying a sick, dehydrated child as a tree that had lost all of its leaves. In contrast, a child nourished with ORS and zinc was likened to a healthy, lush tree during the rainy season. Program staff pretested the messages and materials with CHWs and community members through focus groups and trials of improved practices. The pretests suggested several changes to the words and images to improve their understandability. For instance, the images of different foods to give to children were changed to depict more common and accessible ones. Improving the clarity of the cards also helped CHWs better explain the correct administration of zinc and encourage improved feeding behaviors.

Train CHWs to use counseling materials. Regardless of how well understood and acceptable counseling materials are, CHWs need a clear idea of how to use the materials with families. CHW training should include an orientation to the materials and ample time practicing or role-playing the use of the materials. A one-to-three-page guide with illustrations may help CHWs to use the materials appropriately.[140]

Figure 28 shows a counseling card from Nicaragua, which CHWs use to remind caregivers of the form, dosage, and frequency of acetaminophen for fever.

FIGURE 28: EXAMPLE OF COUNSELING CARD: DOSAGE AND FREQUENCY OF ACETAMINOPHEN[80]

Figure 29 shows two versions of reminder cards from Sierra Leone for zinc supplementation. The card on the left shows the dosage and frequency for infants (under the age of six months): half a pill every day. The card on the right is for older children: one pill a day for ten days. The CHW explains to mothers to mark an "X" with a pencil or punch a hole through each dose to track treatment. This also helps the CHW assess adherence to treatment during follow-up visits. Despite their advantages, reminder cards may not be feasible at scale, due to cost.

FIGURE 29: EXAMPLES OF PICTORIAL DOSAGE AND FREQUENCY REMINDER MATERIALS

STRATEGIC ELEMENT

DEMAND
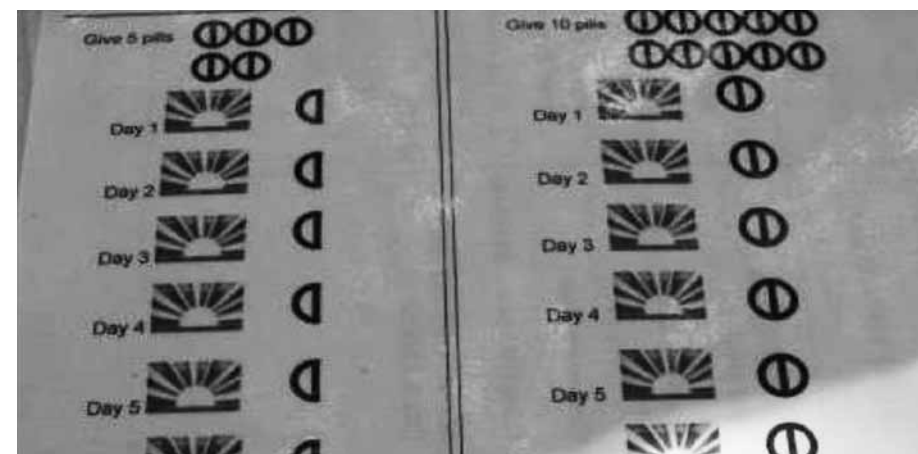
BOX 53: FOLLOW-UP VISITS AND SIMPLE MEDICINE LABELING HELP CHWS ENSURE THAT CAREGIVERS UNDERSTAND MEDICINE USE INSTRUCTIONS[89]

The CCM program in **South Sudan** often works with caregivers and CHWs who are illiterate, posing challenges to ensure that caregivers follow proper medicine use instructions. If the CHW feels that the caregiver does not understand or will not be able to follow the verbal dosing instructions, the CHW follows up with the caregiver for each required dose or treatment in the subsequent day or two. The CHW may also give the medicines to the caregiver in an envelope with pictures of the sunrise, sun, sunset, or moon to indicate what time of day and how many doses should be administered.

Counseling during the initial sick child consultation. In assessing, classifying, and treating or referring, the CHW applies the techniques described in "Effective counseling techniques" above to

- converse with the caregiver about the child's illness;
- provide a clear and careful explanation of the treatment (Box 53);
- demonstrate administration of treatments or preparation of ORS or RUTF;
- ask the caregiver to perform the action (e.g., provide the first dose of medicine);
- probe for questions or concerns caregivers might have about the illness, treatment regimen, or referral;
- discuss options and agree on solutions;
- ensure that caregivers are aware of danger signs and how and when to summon the CHW again or seek referral care, according to the protocol;
- determine the date and time for a follow-up visit;
- use counseling or reminder materials appropriately; and
- carry out components of a facilitated referral, when referral takes place (see Section IV, "Increasing Access").

Additional counseling behaviors include

- praising caregivers who seek the CHW promptly and reminding those who do not of signs of illness and the importance of care-seeking without delay;
- inquiring about child's feeding behaviors before and during the illness;
- carefully explaining proper feeding and other supportive behaviors;
- asking if caregivers foresee any difficulties in providing treatment or performing behaviors;
- discussing ways caregivers can enact new behaviors;
- requesting that caregivers repeat information to confirm comprehension;
- if possible, discussing practices with all caregivers involved in the management of the child's illness, such as fathers, siblings, or grandparents; and
- discouraging the unnecessary use of medicines available outside the formal health sector.

BOX 54: A CLEAR AND CAREFUL EXPLANATION OF TREATMENT INFORMATION

Basic information to give the caretaker includes
- how much of the medicine to give;
- how often to give the medicine;
- the number of days to give the medicine;
- when to give the medicine in relation to food; whether to give the medicine with water;
- how to prepare and give ORS or RUTF (if appropriate); and
- possible side effects and what action to take if they occur.

Counseling during the follow-up sick child consultation. A follow-up visit in the home after the initial visit serves to check on the child's health status and to reinforce and support the behaviors discussed during the initial visit. In addition to assessing the child according to guidelines and determining the child's current health status, the CHW should do the following.

- Greet caregivers politely and remind them of the purpose of visit.
- Ask caregivers to talk about the health of the child since the initial visit and any changes in the child's condition.
- Prompt caregivers to describe the administration of medicines and food since the last visit. If medicines are involved, ask to see any remaining packaging or review the reminder card, as appropriate.
- Discuss any problems or obstacles that may have arisen and together come up with acceptable solutions.
- If it is determined that the child requires another follow-up visit, mutually decide on a date and time.
- Remind caregivers about danger signs and how to get in touch with the CHW if problems arise or if the child's health becomes worse.
- Use counseling or reminder materials appropriately.

The CHW continues follow-up visits until the child's condition is sufficiently resolved.

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TIP

Incorporate reinforcement of preventive family practices into counseling

Counseling in CCM consultations also includes support for child growth and development and disease prevention practices, including those below.

Nutrition

- Exclusive breastfeeding of infants until the age of six months, with the introduction of locally available, vitamin-rich complementary feeding at age six months and continued breastfeeding until at least the age of 24 months.
- Among children who are ill, continued breastfeeding, frequent small feedings or fluids, and catch-up feeding after illness.
- In settings where HIV is concern, nutrition counseling recommendations may differ. (Consult HIV and Infant Feeding: Update[150] in the toolkit at the end of this section.)

Hygiene

- Behaviors that reduce the possibility of the future transmission of illnesses, such as by hand washing with soap before food preparation and consumption, and after defecation, covering food and water against contamination, and the safe disposal of feces from outside the home or compound.

Immunizations

- Review of the child's health card to confirm that vaccines are completed, or to advise caregiver when and where to take the child for immunizations, if needed.

Malaria prevention

- Use of insecticide-treated bed nets as a preventive measure against future malaria infection.

Pregnant women

- Adequate antenatal care, including at least four antenatal visits with an appropriate health care provider and receiving the recommended doses of the tetanus toxoid vaccination.
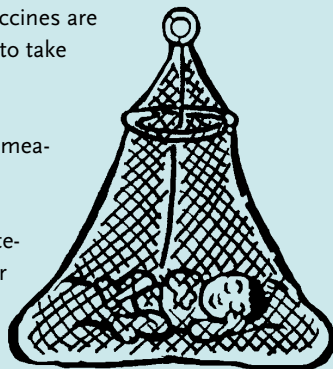
Remember that good quality of care increases demand

A widespread community perception that CHWs provide high-quality services strengthens demand. When community members appreciate the quality of CCM services, particularly in relation to other available services (e.g., traditional healing or private medicine sellers), they are much more likely to want to use CCM services. If community members have been involved in choosing the providers of CCM, their respect for them and perception of quality is likely to be higher. Community mobilization activities and/or regular (at least quarterly) meetings or "health forums" should give program updates and announce progress and accomplishments. Seeing program success motivates community members to continue to seek CCM and practice key behaviors. Such meetings are also an opportunity for community members to give feedback on the quality of the program and what needs improvement.
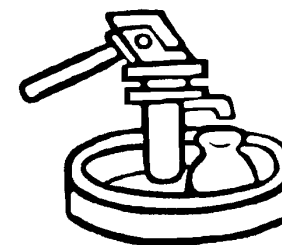
TIP

Ensure that the cost and presentation of treatments used in CCM are the same as those at health facilities

In **Rwanda**, medicines provided by the CHWs had packaging similar to that dispensed at health facilities.[123] This built community members' trust that CCM services were of comparable quality to those of the health facility. When Coartem® was introduced as the first-line treatment at health facilities, some caregivers questioned why a different medicine (amodiaquine/sulfadoxine-pyrimethamine) was still dispensed at the community level.

In **Bolivia**, medicines available at health facilities were subsidized by the government and distributed free of charge.[101] Additionally, they were not the same as the medicines in the CCM program. CHWs reported resistance from community members to pay them for medicines that were free at the health center. "The community scolds me: 'Why are you selling the medicines? They are free at the Health Center.'"

Monitor and evaluate demand

The sick child module of the Rapid Knowledge, Practices, and Coverage (KPC) survey, by the Child Survival Technical Support Project (CSTS+), contains questions that can be used to monitor caregiver knowledge of danger signs and reported timing of care-seeking.[151] The survey should also determine caregivers' knowledge of the CHW as a source of treatment for common child illnesses. Programs do not need to conduct a household survey for the sole purpose of assessing demand.

The demand for CCM may also be inferred from data on use—increasing use, especially when competing sources of care are few, suggests acceptable demand. Observations during field visits, conversations with supervisors, minutes of community meetings, and so on can also provide evidence of demand.

Monitoring data may suggest that caregivers are not practicing key behaviors. This could be due to
- failure to implement or complete program activities as planned;
- the CHWs' not counseling appropriately (failing to give messages or not clearly explaining messages);
- caregivers' not understanding messages well, even though CHWs deliver them accurately (poorly designed messages); and
- cultural, economic, or logistical reasons that inhibit the practice of key behaviors.

Additional research can identify how to improve adoption of key behaviors. Additional qualitative or operations research allows for a more thorough exploration of the reasons for limited demand for CCM and for testing ways to improve demand for CCM and adoption of key household practices. For example, if household surveys indicate that caregivers do not know signs of childhood illness, and therefore do not seek CHWs for treatment, qualitative research can examine the underlying reasons for this by interviewing caregivers. Interviews can focus on the recall of counseling messages that caregivers received during a CHW visit as well as other issues that influence caregivers' ability to detect illness. This information can then be used to develop new materials and provide refresher training to CHWs to help them clarify and emphasize messages about illness recognition and prompt care-seeking.

Toolkit: resources for increasing demand

Favin M et al. *Guidelines for developing home-based reminder materials: helping families save sick children*. Millwood, VA: Project HOPE and Academy for Educational Development, 2004.

HIV and infant feeding: update based on the technical consultation held on behalf of the Inter-agency Task Team (IATT) on Prevention of HIV Infections in Pregnant Women, Mothers and their Infants. Geneva, 25–27 October 2006. Geneva, WHO/UNICEF/UNAIDS/UNFPA, 2007 (http://www.who.int/child_adolescent_health/documents/9789241595964/en/).

Laughlin M. *The care group difference: a guide to mobilizing community-based volunteer health educators*. Baltimore, MD, World Relief, 2004 (http://www.coregroup.org/index.php?option=com_content&view=article&id=50).

C-IMCI Guidelines on Family Practices

The knowledge, practices, and coverage (KPC) tools:

Knowledge, Practices, and Coverage (KPC) resources, modules, field guide, questionnaires, tabulation plans

Baume C, Kachur SP. *Improving community case management of childhood malaria: how behavioral research can help*. Washington, DC, Academy for Educational Development/Support for Analysis and Research in Africa (SARA) Project, 1999.

Emphasis behaviors in maternal and child health: focusing on caretaker behaviors to develop maternal and child health programs in communities. Arlington, VA, BASICS for USAID, 1997.

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Section VII:

Increasing Use of CCM Interventions

Did the strategies, interventions, and activities for all four intermediate results lead to increased use?

Managers, policy makers, and other stakeholders want to know if investments in all four elements of the strategic framework indeed led to increased use of lifesaving interventions. Although they may also wish to know if CCM had an impact on mortality, this is expensive to measure and requires population-based surveys carried out at infrequent intervals; other data sources, such as Demographic and Health Surveys, may provide estimates of such information. Moreover, since the interventions used in CCM are proven to save lives, it can be assumed that their increased use contributes to improved health. Changes in use can be used to model lives saved through the Lives Saved Tool (LiST).[152] LiST is a new computer-based tool that allows users to estimate the impact of different intervention packages and coverage levels for countries, states or districts.

Sample indicators of use of CCM interventions. Table 20 proposes indicators of use. As with most other suggested indicators for CCM, routine data collection—reports complied by supervisors (the CCM register)—is the source of most of the information.

Updated global benchmarks and indicators available at www.CCMCentral.com.

TABLE 20: SAMPLE INDICATORS OF USE OF CCM INTERVENTIONS[83]

INDICATOR	DEFINITION	SOURCE OF DATA	FREQUENCY OF COLLECTION	POINT PERSON	COMMENTS
Episodes of all illnesses treated by CCM	# episodes of illness treated by CCM/1000 under-five population, per year	CCM Register (compilation of CHW records)	Monthly/ quarterly	Supervisor	First visit for episode
Episodes of specific diseases treated by CCM	# cases (treated by CHW at household & urgent cases referred by CHW)	CCM Register	Monthly/ quarterly	Supervisor	First visit
Total episodes treated, by disease	# episodes treated at health facilities & through CCM, by disease	CCM register and health-facility register (adjusted for impact area)	Monthly/ quarterly	Manager	First visit; mainly informs treatment ratio (below); when totaling CCM & facility-based counts, restrict facility counts to episodes from communities with CCM
Treatment ratio	# episodes treated/# expected, by disease, as % (especially pneumonia treatment ratio, diarrhea & malaria treatment ratio—if feasible)	CCM register and facility register (adjusted for impact area)	Annually	Manager	

INDICATOR	DEFINITION	SOURCE OF DATA	FREQUENCY OF COLLECTION	POINT PERSON	COMMENTS
Scheduled follow-up visit completion by CHW	# scheduled follow-up visits completed/ # episodes treated	CCM register	Monthly/ quarterly	Supervisor	Follow-up may be done by CHW's going to household or by caregiver's returning to CHW, depending on program; an important aspect of quality; some programs do not require follow-up
Treatment compliance ratio	# caregivers completing treatment/# treatments by CCM worker, as %, by worker, by supervision unit, by project	CCM register	Monthly/ quarterly	Supervisor	Also an element of quality & demand (service statistics will have better recall)
Referral completion ratio	# completed referrals/# recommended referrals, as %, by worker, by supervision unit, by project, by syndrome	CCM register	Monthly/ quarterly	Supervisor	Also an element of quality & demand (service statistics will have better recall)
Care-seeking	Levels & patterns of timely care-seeking (within 24 hrs) by syndrome	Household survey	Baseline & endline; annually	Manager	Should stratify by receipt of and completion of treatment; allow measuring all sources of care; also indicator demand; changes can inform lives saved calculation

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Figure 30 shows an example of part of a CCM Register—in this case, showing only sick children seen for pneumonia-related signs. (A register for an integrated program addressing diarrhea, pneumonia, malnutrition, and other conditions is much larger.) Supervisors or managers can prepare monthly summaries such as these, which can in turn be compiled with other summaries from the same program.

FIGURE 30: EXAMPLE OF PERIODIC SUMMARY OF CHWS' REGISTERS BY A SUPERVISOR[80]

Monthly summary (partial) from registers and supervision checklists														
Supervisor:						Month:								
		Age group (months)		Visit		Classification			Referral		Referral comple-tion		Treatment compli-ance	
CHW name	Community	2 – 11	12 –59	1	F/U	Severe Pneumonia	Pneumonia	Cough/cold	Yes	No	Yes	No	Yes	No
Total														

The figures below demonstrate some of the ways the data from such a register can be displayed and interpreted. For example, Figure 31 shows that almost all caregivers completed treatment and/or referral. However, one district had much lower rates of referral completion, which calls for further exploration.

FIGURE 31: EXAMPLE OF DATA DISPLAY ON TREATMENT COMPLIANCE AND REFERRAL COMPLETION[80]

Compliance and completion as reported at home follow-up visits by district (Oct – Dec '07)
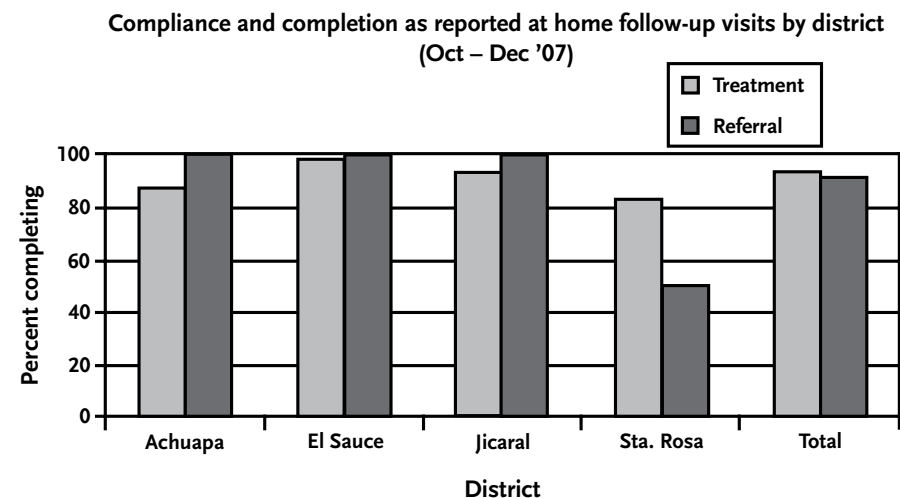
FIGURE 32: EXAMPLE OF DATA DISPLAY ON TREATMENT RATIO[80]

Pnuemonia treatment ratio by district (2008)
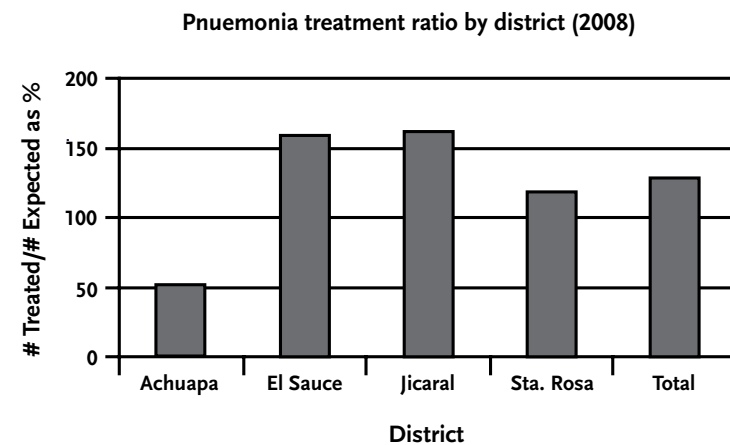
Figure 32 shows the treatment ratio—the number of episodes of pneumonia treated by CCM workers divided by the number expected, expressed as a percentage. Expected cases, by country, can be estimated based on recent epidemiological modeling.[153] Subnational projections of expected cases are not without risk, but they provide benchmarks for managers to compare. A 100% ratio would indicate that CCM treats all the expected cases of pneumonia. The graph shows treatment ratios over 100% in three of the four municipalities. This could be explained by any number of situations.

- There was an epidemic of pneumonia.

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- There was normal variation in pneumonia cases.
- The risk for pneumonia is higher than predicted. For CCM, this is almost always the case because it is a strategy to reach more remote, poorer communities.
- The denominator in the estimate was too low, that is, the under-five population is actually higher.
- The condition was misclassified, e.g., it was asthma that appeared to be pneumonia.
- The CHWs provided services to children who did not live in the communities the CHWs serve.
- The CHWs overclassified the condition as pneumonia due to caregivers' pressure for antibiotics.
- The CHWs misclassified the condition because they overestimated sick children's respiratory rates.

While the first four possible causes are probably not within a manager's scope of work, the last four are issues that merit further exploration. The low treatment ratio in one subdistrict is also another concern.

As with all monitoring data, prompt analysis and sharing of the data with stakeholders increases the likelihood of creative and sustainable solutions to problems, and of "ownership" of the program.

When the results show increased use, it is time to consider how to best further increase use of CCM. It is time to plan for expansion or scaling up so that more children under five can benefit from this strategy.

Expanding use of CCM: scaling up

Consider functional scaling up. Scaling up is typically thought of as geographic expansion (more places) or extending the population groups reached (targeting a different age group). "Functional scaling up" is another scaling-up strategy relevant to CCM. It involves adding new interventions to an existing effort.[154] For example, established CCM that does not include treatment of pneumonia would be well suited for that intervention. Integrated programs may wish to consider adding community-based treatment of acute severe malnutrition with RUTF, treatment of neonatal sepsis, or other interventions.

Assess readiness to go to scale. Managers and decision-makers need to take into account the points below when thinking about the whether a small-scale project or program is ready to be replicated in other areas. Those who have a vision of scale from the outset of a pilot project find it more likely that these conditions exist.

The "**scalability**" of the package of interventions, approaches, and activities is enhanced when[155]

- the evidence supporting its effectiveness is credible;

- the people and institutions advocating for it are respected and convincing;
- there is a clear, and shared, definition of the intervention and all components;
- the package of interventions is relevant to policy or program priorities.
- it is easy to install in the health system: it is compatible with existing structures and systems; and easy-to-use procedures, tools, and methods are available; and
- one or more of the pilot sites can serve as a learning location (or "living university") for other district teams.[156]

Scaling up is facilitated when there is the **organizational capacity** to implement a large-scale program, meaning that

- the necessary capacities in training, logistics, supervision, management, etc. are in place; and
- the needed technical assistance from partners who started the small-scale project is available to support expansion.

A strong **constituency** for scaling up the intervention can sustain momentum.

- Support is needed at various levels throughout the health system.
- Advocates and champions make a case for scaling up.
- Partnerships and alliances can take on different roles and enlarge the network of people and institutions supporting scaling up.
- All stakeholders share a common vision of "scale."
- Ongoing advocacy, particularly in the face of competing priorities, is required.

Long-term **financial resources** are needed:

- Predictable, adequate funding from both international and national sources is often required for at least 10 to 20 years.[154]

Planning to go to scale. Experience from successfully scaled-up projects suggest the following principles.[85]

- Expand gradually and in phases to ensure that the package being replicated does not lose its essential features.
- Continue to mobilize champions, advocate, and create support.
- Start with points of strength, where success is more likely to provide multiple examples that demonstrate how CCM works.
- Bring in new partners as needed. Ensure they share the same vision.
- Work within existing resources and structures.
- Continue to develop and implement capacity-building strategies.
- Monitor and evaluate the scaling-up process, not only the outcomes and results.
- Expect the unexpected.

Box 55: Scaling up CCM of pneumonia contributes to achieving MDG 4 in Nepal[43]

Nepal is one of only five countries that have reduced under-five mortality by 50% since 1990. CCM of pneumonia contributed to this achievement. Through phased program expansion over a 14-year period, beginning in the mid-1980s, 69% of the under-five population had access to pneumonia treatment by 2007. Scaling up continues today.

Milestones in the successful scaling-up process included:
- 1986–1989. Research in a remote mountainous district validated results from a previous study that showed a reduction in acute respiratory infection-specific mortality with CCM of childhood pneumonia. These promising findings, together with the magnitude of under-five deaths due to pneumonia, motivated the MOH to replicate CCM of pneumonia within the government system.
- 1993–1994. A technical working group designed a study to compare the results of two different strategies for treatment of pneumonia: (1) using trained Female Community Health Volunteers (FCHVs) to assess and manage childhood pneumonia at a community level using oral antibiotics; and (2) using FCHVs to assess and refer pneumonia cases to the nearest health facility. Preparations included an ethnographic study to understand community-perceived danger signs of pneumonia and care-seeking practices. Preparations also included the development of technical guidelines and pictorial training and behavior change communications materials appropriate for the low literacy levels of some FCHVs and community members.
- 1995–1997. The pilot was carried out in four districts—two where FCHVs provided treatment, and two where they provided referral. A 1997 evaluation found that the proportion of expected pneumonia cases receiving treatment almost doubled in the two "treatment" districts, that the FCHVs appropriately assessed and treated pneumonia, and that the community strongly accepted CCM of pneumonia. These findings led to a recommendation for cautious expansion of CCM.
- 1997–today. Gradual expansion of the program.
- 1999. The program merged with community-based IMCI.
- 2007. Pilot testing of adding CCM of newborn sepsis to the package.

Major lessons learned about the expansion process include:
- In-country data influenced high-level decision-makers to embark on a scalable pilot program. However, every new expansion phase required new MOH approval.
- Building on the established FCHV cadre facilitated implementation of successful CCM of pneumonia. Communities already recognized and accepted FCHVs before the program began.
- Merging CCM of pneumonia with community-based IMCI allowed it to become a part of routine annual programming
- Well-functioning health systems, such as respiratory timers, recording forms, supportive supervision, review meetings, and an uninterrupted supply of antibiotics, are critical to assuring quality care, maintaining motivation, and providing on-the-job refresher training..

- Tenacious advocacy allowed the exploration of CCM and the development of permissive policy and a model program.
- Strong and sustained leadership from the MOH and donor partners facilitated the start-up of the program and kept it on track during the early years.
- External funding allowed the program to test and establish the necessary organizational capacities and political support to sustain it.

Toolkit: resources for increasing use of CCM

Resources for estimating impact of CCM

Lives Saved Tool (LiST). An evidence-based decision-making tool for estimating intervention impact. Institute of International Programs, Johns Hopkins University Bloomberg School of Public Health. 2009.

This Web site includes
- the tool and instruction manuals;
- a software package to download;
- slide shows exemplifying use; and
- files with HIV and AIDS projections.

See also the worksheet "Sample formative research tools for CCM" in the toolkit of Section II, "Analyzing the Situation."

Resources for scaling up

Cooley L, Kohl R. *Scaling up--from vision to large-scale change: a management framework for practitioners.* Washington, DC, Management Systems International, 2006.

A guide for fostering change to scale up effective health services. Boston, Management Sciences for Health for the Implementing Best Practices Consortium, 2007.

Marginal budgeting for bottlenecks. (See toolkit in Section II, "Analyzing the Situation.")

Nine steps for developing a scaling-up strategy [draft]. Geneva, WHO and ExpandNet. 9 November 2009.

Practical guidance for scaling up health service innovations. Geneva, World Health Organization and ExpandNet, 2009.

http://www.expandnet.net/PDFs/WHO_ExpandNet_Practical_Guide_published.pdf

"SCALE" and "SCALING-UP." A CORE Group background paper on "scaling-up" maternal, newborn and child health services. 11 July 2005.

Other reports

Scaling up community-based treatment in Senegal. Washington, DC, BASICS and USAID, n.d.

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Use

Section VIII:
Future Directions of CCM

In the last two decades, CCM has progressed from experiences in two countries in Asia[43,48] to implementation in more than 40 countries across the globe.[28,29] Data on child mortality and coverage rates for treatments of childhood illness confirm that many more countries and populations could benefit from CCM. At the same time, it is an evolving strategy in a changing world. To paraphrase a familiar saying, "The more one learns about CCM, the more questions one has about how to best implement it." Advocates suggest that a better understanding of the issues discussed below will lead to more effective CCM and improved capacities to put it into place.

Old questions needing new answers

The list of proposed operations research questions on CCM is growing (Section III, "Enabling a Supportive Social and Policy Environment"). However, there is not yet a consensus on which questions are global priorities, which would help country decision-makers and researchers design studies that are both nationally and internationally relevant. Below are some of the "old" questions that remain unanswered.

Supervision. What is the best supervision strategy? What is the most cost-effective supervision strategy? (For example, a supervisor visiting a CHW for one-on-one supervision? A supervisor visiting a group of CHWs? A group of CHWs coming to the supervisor's work site?)

Role of private-sector providers. Which type of private provider is most amenable to delivering standard case management? (For example, shopkeepers? Traditional healers?)

FUTURE OF CCM

Current debates

The diversity of CCM approaches has raised a number of relatively new concerns that are still the subject of debate and thus suggest the need for additional research. These concerns include the following.

Clinical, "hands-on" training. Is it an absolute necessity? Although there are many strong arguments in favor of clinical training, it can be very costly to bring CHWs to a facility large enough (often a regional hospital) to have sufficient cases that allow CHWs to see danger signs and permit trainers to monitor learning of case management skills. Can videos, role-plays, and other teaching approaches adequately prepare CHWs? What is the cost-benefit of the various methodologies for different cadres, with different backgrounds and experiences?

Financial incentives and motivation. What are the best ways to motivate CHWs? Some countries (e.g., Nepal and Nicaragua) have reliable, sustainable volunteer CHWs. What about these situations makes this happen? Can any of these lessons be transferred to other settings?

Integration of newborn and child CCM. How is CCM for these two age groups best integrated? Is it best to add newborn CCM to a child CCM platform? Or should newborn CCM be the foundation?

Reaching the "almost impossible" to reach. Some families and communities are so remote from facilities that could serve as a base for CCM that the necessary ongoing support and supervision of CHWs is not feasible. How can curative interventions be delivered to these populations?

The role of new technologies

New technologies—from diagnostics to communication tools—often develop faster than the capacity of programs to incorporate them. Nevertheless, many have the promise to increase both effectiveness and efficiency in CCM. Managers and planners should anticipate the following technologies and consider the feasibility and implications of incorporating them into programs.

Rapid diagnostic tools (RDTs). Countries are beginning to introduce RDTs for malaria into CCM, as a result of the WHO recommendation for parasite-based diagnosis even at the community level.[157] There is an urgent need for RDTs for pneumonia. RDTs for HIV/AIDS are available. The introduction of these new tools will affect training for CHWs as well as treatment protocols. In the case of malaria, most fevers in malaria-endemic areas are not due to malaria. Not only must provision for appropriate management of non-malarial febrile illness be in place, but also community education and sensitization efforts, as families (and often health workers) often assume that "fever equals malaria unless proven otherwise."[157]

Mobile technology. Handheld computers, personal digital assistants, cell and satellite phones with still and video camera capabilities, and other mobile technologies have potential applications in CCM. These possible functions include job aids, supervision, supply, communication for referral or consultation, monitoring, mapping, and more. For example, the camera in a mobile phone could take a holographic image of blood, which could be sent as an attachment to a computer, which can detect malaria and HIV. As costs for these technologies decrease, it is conceivable that some barriers to access and quality can be overcome.

Evolving epidemiology

Scaling up of indoor residual spraying (IRS), insecticide-treated bed nets (ITN), vaccines against *Haemophilus influenzae* type b and *pneumococcus*, and other preventive interventions should decrease the incidence of CCM-treatable diseases. The changing disease panorama raises questions for CCM.

- How will this affect the sensitivity and specificity of current IMCI algorithms?
- When will the need for RDTs for malaria stop?
- When can CCM stop?

While reduced disease would be welcome, other global health concerns may have a negative effect on CCM and its design. For example, a pandemic of severe influenza might put CHWs in a position of being expected or required to take on responsibilities beyond those of CCM. Global warming could cause mosquitoes to appear where they were previously absent, with the accompanying threat of malaria and dengue fever. Some regions might be at risk of reduced rainfall, causing a shortage of fresh water and introducing the danger of waterborne diseases. Millions of people could be at risk of malnutrition and hunger if arable lands become unworkable.[158]

Global networks

A global coalition of organizations dedicated specifically to advocacy and support for CCM does not exist, in name. However, the Global Action Plan for the Prevention and Control of Pneumonia (GAPP) brings together UNICEF, WHO, and other partners to focus on actions to scale up community-based treatment of pneumonia, in the context of integrated interventions, including those addressing diarrheal diseases, malaria, and other conditions—the interventions that comprise CCM.[159]

A newly formed task force on CCM is reviewing existing CCM tools for CHWs, supervisors, training, and formative research. It is also developing a set of common indicators for CCM (most of which are included in this guide) to stimulate quality measurements across projects and allow for comparisons among them to identify best practices. In addition, the task force is carrying out a country

mapping exercise that will categorize countries' readiness for integrated CCM in order to facilitate prioritization of efforts and orient technical assistance. The categories include *closed* (no opportunity); *open to introduction* (opportunity exists); *open to scale but constrained technically* (opportunity and experience exist, but technical capacity needs strengthening); *open to scale and only constrained financially* (opportunity and experience exist, but financial resources are limited); and *scaling up full-steam ahead* (opportunity and experience exist as do the political will and commitment).

The CCM Operations Research Group has developed and is updating a list of priority operations research questions and is preparing tools that can guide the preparation of in-depth case studies of CCM.

> "CCM is here to stay. The need is significant, but we are just scratching the surface of what this lifesaving strategy can do for rural populations in the developing world."[160]

Another group is looking at adapting CCM for emergency settings. Community-based actions are the front line of protection against emergencies for all phases of prevention, preparedness response and recovery. Work has begun to look at the contributions of community-based health workers ability to help protect communities against emergencies. Further work needs to be done to gather good practices and to create the evidence-base for the role of CCM in all phases of an emergency. An integrated CCM program that is able to be adjusted and adapted to emergencies could provide a critical service delivery mechanism to reduce excess mortality in the face of an emergency and increase the resilience and ability of communities to cope with emergencies. This is particularly important as a number of existing or planned CCM programs are being implemented in countries and communities at high risk of emergencies and in fragile settings. A *Joint Statement on Scaling up the community-based health workforce for emergencies* is also now available.

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Community Case Management Essentials:
Treating Common Childhood Illnesses in the Community
A Guide for Program Managers

The leading causes of death among children under five years of age are well understood—yet efforts to protect the children most at risk have not kept pace with global goals. But now a growing body of evidence supports a new approach that may make a dent in childhood deaths from the biggest killers: pneumonia, diarrhea, malaria, newborn infection and malnutrition. Known as Community Case Management of Sick Children (CCM), this approach sends community-based health workers out to find, diagnose, and successfully treat sick children, in partnership with their families.

Inspired by the classic *Immunization Essentials*, this guide methodically documents what is known about CCM and how to make it work. First, health program managers are introduced to the basics. Then, *CCM Essentials* walks its readers through the process of designing and managing a high-quality CCM program. The ultimate result: lives of newborns, infants and children saved around the world.