# IMPROVING MEDICINES ACCESS AND USE FOR CHILD HEALTH: A GUIDE TO DEVELOPING INTERVENTIONS

**SEPTEMBER 2015**

USAID
FROM THE AMERICAN PEOPLE

SIAPS
Systems for Improved Access to Pharmaceuticals and Services

This manual is made possible by the generous support of the American people through the US Agency for International Development (USAID), under the terms of cooperative agreement number AID-OAA-A-11-00021. The contents are the responsibility of Management Sciences for Health and do not necessarily reflect the views of USAID or the United States Government.

## About SIAPS

The goal of the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program is to assure the availability of quality pharmaceutical products and effective pharmaceutical services to achieve desired health outcomes. Toward this end, the SIAPS result areas include improving governance, building capacity for pharmaceutical management and services, addressing information needed for decision-making in the pharmaceutical sector, strengthening financing strategies and mechanisms to improve access to medicines, and increasing quality pharmaceutical services.

## Recommended Citation



Ross-Degnan, D., Vialle-Valentin, C., and Briggs, J. 2015. *Improving Medicines Access and Use for Child Health: A Guide to Developing Interventions.* Submitted to the US Agency for International Development by the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program. Arlington, VA: Management Sciences for Health.

## Key Words

Intervention, child health, access, medicine

Systems for Improved Access to Pharmaceuticals and Services
Center for Pharmaceutical Management
Management Sciences for Health
4301 North Fairfax Drive, Suite 400
Arlington, VA 22203 USA
Telephone: 703.524.6575
Fax: 703.524.7898
E-mail: siaps@msh.org
Web: www.siapsprogram.org

## Acknowldegements

The authors acknowledge the contribution of reviewers Beth Yeager, John Chalker, and Patricia Paredes of Management Sciences for Health.

# Table of Contents

**Chapter 5. Evaluate Intervention**



**Annexes**

# Introduction

## Background

Despite declining numbers of deaths in children under five years of age between 1990 and 2010, the world is still far from achieving the fourth Millennium Development Goal (MDG-4) which calls for a two-thirds reduction in under-five mortality rate by 2015.[1,2,3,4, 5,6,7,8,9,10] One key strategy for accelerating progress towards MDG-4 is effective case management of sick children, as emphasized by the UN Commission on Life-Saving Commodities for Women and Children.[11,12] To achieve MDG-4, common pediatric illnesses must be correctly diagnosed in a timely way, clinically appropriate medicines must be available in the community, and families must be able to obtain and properly use these medicines.[13]

Many countries have adopted Integrated Management of Childhood Illness (IMCI), a strategy promoted by the World Health Organization (WHO) and United Nations Children's Fund (UNICEF).[14] IMCI consists of three components: strengthening health workers' skills in managing sick children, improving health systems, and promoting good child health practices in families and communities.

Community Case Management (CCM) is an approach recommended by WHO and UNICEF related to the third IMCI component that emphasizes the role of Community Health Workers (CHWs) in promoting timely care-seeking, early diagnosis and appropriate treatment, and adequate referrals to facilities.[15,16,17] CCM is particularly valuable in settings with limited human resources and poor access to health services. Effective adoption of CCM faces challenges related to medicines supply, logistics, monitoring, as well as motivation and supervision of CHWs.[18,19,20,21]

Unless medicines are locally available, they cannot be used effectively. Other providers besides community volunteers also can play a role in improving access and use of medicines for child health. For example, in recent years some countries have developed a system of Accredited Drug Dispensing Outlets (ADDOs) to expand access to medicines sector in locations that are closer to the community, such as private drug shops. ADDO programs focus on training private drug sellers to recognize signs and symptoms of common illnesses, recommend the preferred medicines for the condition, and to stock and dispense quality medicines in their communities.[22,23,24]

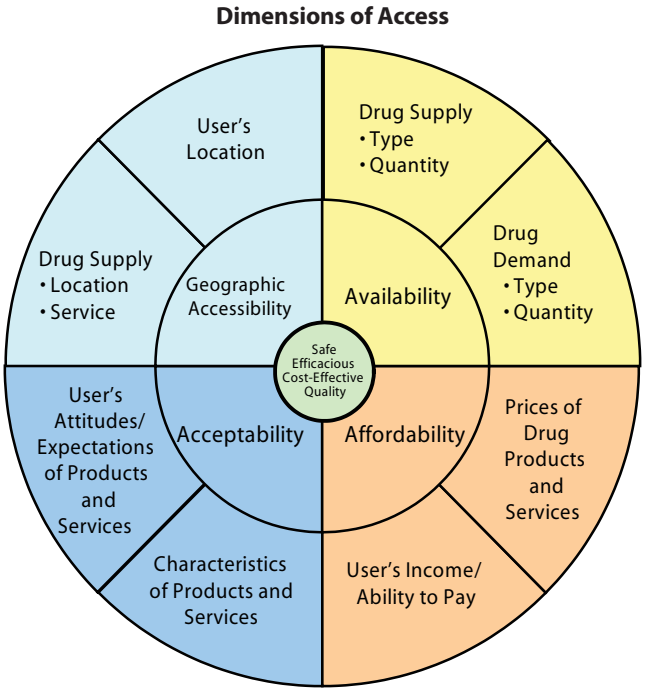

Source: http://www.coregroup.org/our-technical-work/initiatives/ccm

## Problems with Access and Use of Medicines for Children

More often than not, health services for children are not as effective as they could be. Over the years, national ministries of health, nongovernment and donor organizations, and local health authorities have implemented a succession of interventions to improve services in many countries, but many have had disappointing results. One reason for failure is that these approaches were implemented without a sufficient understanding of how caregivers in the community access health services and medicines.

Health services and medicines cannot be used effectively unless caregivers have access to them. Access has different dimensions, and problems with any one of these can cause poor outcomes as shown in the Dimensions of Access figure (adapted from CPM 2003)[25].

Medicines or health services may be a long way from the people who need them (geographical access). Products or services may not be obtainable when needed (availability), or not satisfactory to the potential user (acceptability). All too often, medicines or services are not within the patient's means, either because of high prices or low income levels (affordability). This guide presents solutions to these issues of access to child health services and medicines that can be addressed at the district level.




Even if a caregiver has access to needed health services, the prescription or dispensing may not be appropriate, or the patient may not adhere to the recommended treatment. Correct health provider practices and subsequent use of medicines are crucially important.

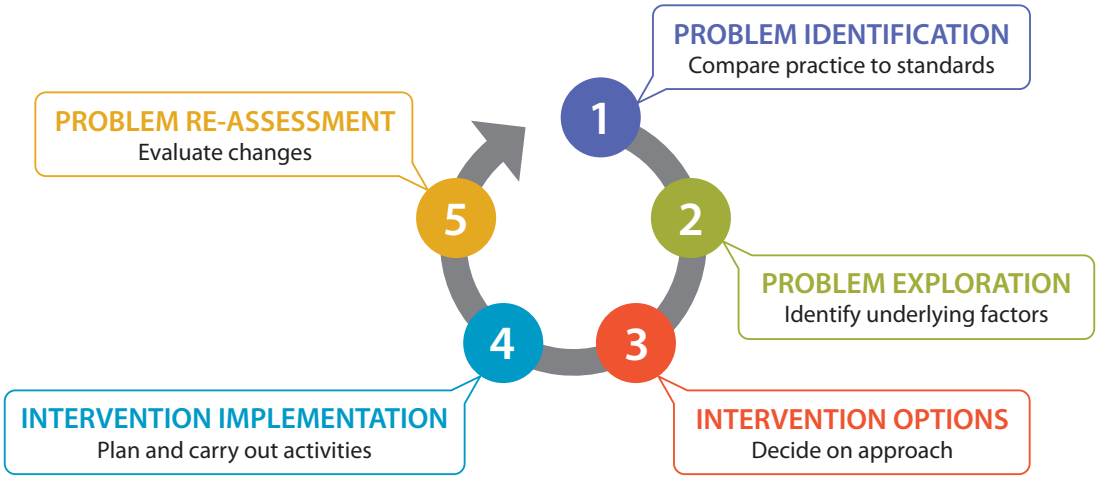
Some problems can only be addressed at the national level. For example a district health officer has no responsibility for assuring the quality of the medicines imported or manufactured in the country. However, quality assurance of medicines as a part of store management and reporting adverse medicine reactions are district level considerations.

To be effective, an intervention needs to target the root causes of the problems that affect access or use. A methodical and thoughtful approach can ensure greater success in diagnosing those problems, understanding why they exist and what interventions may be effective, and implementing and evaluating an intervention. This manual seeks to guide these processes.

## A Cycle for Developing and Testing Interventions

This manual provides a framework to identify problems and design interventions to improve access to and use of medicines for children. Framework 1 presents the five-step approach on which this manual is based.

### Framework 1. Developing Interventions to Improve Use of Medicines




Adapted from: INRUD Promoting Rational Drug Use Course Session 9: Framework for Changing Drug Use Practices[26]

1. Identify problems: document the extent of problems in access and use of medicines for child illness using quantitative tools;
2. Explore problems: investigate the causes of the observed problems using qualitative and quantitative methods;
3. Design an intervention to correct the problems**:** consider possible options to change problem behaviors, given the existing constraints;
4. Implement the intervention: implement an intervention that addresses as many of the underlying causes as possible;
5. Monitor and evaluate results: observe if the intervention reduces the problems that were targeted, and revise it accordingly.

The manual uses this logical cycle to introduce key steps in planning and developing interventions to improve access to and use of medicines for sick children.

## Introduction to this Manual

This manual is a resource for both health policy makers and health system managers. It presents a structured approach to the steps in Framework 1 in the context of child health. While the examples are specific to common child health problems, the approaches would apply to all areas of child or adult health requiring use of medicines or preventive commodities.

This manual is ***not*** intended to provide all of the details about how to use specific quantitative or qualitative research methods or to communicate details about implementing and evaluating interventions. Whenever possible, the manual refers to other resources that focus on these issues.

### *Who Should Use this Manual?*

This manual will be useful to policy makers and health system managers at all levels of the health system and interested in improving medicines access and use for sick children:

- **At the central level,** for example in the Division of Child Health or the IMCI Program Office of the Ministry of Health (MoH), the national office of a mission health program, or the national health policy unit of a donor organization;

- **At the district level,** for example in a provincial or district health office;
- **At the community level,** for example an NGO or a community health board;
- **In health or educational institutions,** for example in one or a small number of health facilities, pharmacies, private clinics, or schools.

The approaches described in this manual need to be adapted to the local context and the types of users will vary. Three examples are used to illustrate issues throughout the manual:

- A national team working centrally in the MoH to implement and evaluate IMCI or other national child health interventions (referred to as the **National Child Health Team**);
- A national Malaria Program developing a strategy to expand the use of rapid diagnostic testing (RDT) to encourage appropriate antimalarial treatment for children with confirmed malaria (**National Malaria Team**);
- A district team starting to implement integrated community case management for children with pneumonia, diarrhea, and malaria (**District CCM Team**).

### *Importance of a Working Group*

Involving key stakeholders in developing an intervention to improve care of sick children increases its chances of success. Usually, a lead organization or a small number of committed individuals will initiate and drive the process. However, the chance of sustainable improvements increases when different people and organizations work together throughout the intervention.

Forming a working group should be the first step in problem solving. Key national or local policy makers should be involved, since most interventions require sound regulation to strengthen health systems, coordinated community systems, and adequate financing. Depending on the nature of the issue addressed, organizations involved in caring for sick children in the community should also be involved, including the local health management team, public and private health facilities, professional organizations, private medicine outlets, and pharmaceutical suppliers. Representatives from churches, consumer groups, and women's associations can also make major contributions.

**Working Group Activity:**
The lead individual or organization planning to undertake an intervention to improve access to and use of medicines for child illness should identify key stakeholders to form a working group. The members of the working group may be called upon throughout the process to contribute ideas, provide technical support, facilitate access to systems and data, and implement components of the intervention. Usually a smaller technical team will lead the actual field work.

Examples of working groups formed for the three illustrative cases in the manual:

- The National IMCI Team, based in the Maternal and Child Health Division of the MoH, convened a large working group involving representatives from the national university; the national Pediatric Society and Nurses Association; the central pediatric hospital; the health program in the Ministry of Education; the National Drug Regulatory Authority; the Central Medical Store; two large manufacturers of generic pediatric medicines; the national Retailers Association; the national women's organization; and country offices of WHO, UNICEF, and Save the Children.
- In addition to staff from the national Malaria Control Program, the National Malaria Team involved representatives from the Medical Society, Pharmaceutical Society, and Pharmaceutical Manufacturers' Association; the central medical stores, the national hospital; and the primary recipients of Global Fund funding in the country.
- The District CCM Team, based in the District Health Office, convened a small team consisting of the Secretary of the District Health Team; a pediatrician and a nurse from the local hospital; a regional sales representative from the national generics manufacturer; the head of the District Council; and a representative from the national office of UNICEF.

### *Organization of the Manual*

This manual is organized in five chapters, with annexes containing detailed tables, resource lists, and supporting materials. Users can begin with any chapter depending on the local situation.

**Chapter 1** introduces a framework for understanding the steps in the pathway for caring for child illness. It describes tools for assessing current practices by caregivers and health care providers, and comparing them to optimal practices using indicators.

- If your working group wishes to use quantitative methods to identify current issues related to access to and use of medicines for child illness, begin with Chapter 1.

**Chapter 2** discusses methods for exploring in depth some of the causes of common problems related to medicines for children. This exploration can suggest the basis for designing interventions to address problems.

- If your working group has already identified priority problems and wants to understand more about their causes, begin with Chapter 2.

**Chapter 3** presents options for practical interventions to address complex problems. It describes various interventions that target caregivers, health providers, or the care system as a whole.

- If your working group has identified priority problems, understands their causes, and wishes to develop targeted interventions, start with Chapter 3 to explore the possibilities.

**Chapter 4** reviews principles for implementing effective, multifaceted interventions and describes how intervention components can reinforce each other.

- If your working group needs an overview of issues to consider when designing, implementing, and monitoring a multifaceted intervention, begin with Chapter 4.

**Chapter 5** offers guidance on how to evaluate the results of an intervention in a particular setting.

- If your working group would like an overview of issues to consider when developing a strategy to evaluate a multifaceted intervention, begin with Chapter 5

# Introduction Reference List


1. United Nations Development Programme. *Millennium Development Goals: A compact among nations to end human poverty.* © Oxford University Press: United Nations; 2003. Available from: http://hdr.undp.org/sites/default/files/reports/264/hdr_2003_en_complete.pdf by permission of Oxford University Press, USA www.oup.com

2. Jones G, Steketee RW, Black RE, Bhutta ZA, Morris SS. How many child deaths can we prevent this year? *Lancet* [Internet] 2003 [cited 2012 Sep 12];362(9377):65–71. Available from: http://www.who.int/maternal_child_adolescent/documents/pdfs/lancet_child_survival_prevent_deaths.pdf

3. Black RE, Cousens S, Johnson HL, et al. Global, regional, and national causes of child mortality in 2008: a systematic analysis. *Lancet* [Internet] 2010 [cited 2012 Sep 5];375(9730):1969–87. Available from: http://www.ncbi.nlm.nih.gov/pubmed/20466419

4. Bhutta ZA, Chopra M, Axelson H, et al. Countdown to 2015 decade report (2000-10): taking stock of maternal, newborn, and child survival. *Lancet* [Internet] 2010 [cited 2012 Sep 5];375(9730):2032–44. Available from: http://www.ncbi.nlm.nih.gov/pubmed/20569843

5. Rajaratnam JK, Marcus JR, Flaxman AD, et al. Neonatal, postneonatal, childhood, and under-5 mortality for 187 countries, 1970–2010: a systematic analysis of progress towards Millennium Development Goal 4. *The Lancet* [Internet] 2010 [cited 2012 Sep 5];375(9730):1988–2008. Available from: http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(10)60703-9/abstract

6. Lozano R, Wang H, Foreman KJ, et al. Progress towards Millennium Development Goals 4 and 5 on maternal and child mortality: an updated systematic analysis. *Lancet* [Internet] 2011 [cited 2012 Sep 6];378(9797):1139–65. Available from: http://www.ncbi.nlm.nih.gov/pubmed/21937100

7. Barros AJD, Ronsmans C, Axelson H, et al. Equity in maternal, newborn, and child health interventions in Countdown to 2015: a retrospective review of survey data from 54 countries. *Lancet* [Internet] 2012 [cited 2012 Sep 5];379(9822):1225–33. Available from: http://www.ncbi.nlm.nih.gov/pubmed/22464386

8. Liu L, Johnson HL, Cousens S, et al. Global, regional, and national causes of child mortality: an updated systematic analysis for 2010 with time trends since 2000. *Lancet* [Internet] 2012 [cited 2012 Sep 12];379(9832):2151–61. Available from: http://www.ncbi.nlm.nih.gov/pubmed/22579125

9. The Millennium Development Goals Report 2012 [Internet]. United Nations; 2012. Available from: http://www.un.org/millenniumgoals/pdf/MDG%20Report%202012.pdf

10. UNICEF. Child Survival Call to Action – Ending Preventable Child Deaths [Internet]. 2012. Available from: http://5thbday.usaid.gov/pages/ResponseSub/roadmap.pdf

11. Demombynes G; Trommlerova SK. 2012 *What Has Driven the Decline of Infant Mortality in Kenya?* © The World Bank; 2012. Licence: Creative Commons Attribution CC BY. Available from: http://elibrary.worldbank.org/doi/abs/10.1596/1813-9450-6057

12. United Nations. UN Commission on Life-Saving Commodities For women and children [Internet]. Every Woman, Every Child. 2012 [cited 2012 Sep 5]; Available from: http://www.everywomaneverychild.org/networks/life-saving-commodities

13. Proceedings of the 2011 International Conference on Improving Use of Medicines - ICIUM2011 [Internet]. ICIUM2011. 2011;Available from: http://www.inrud.org/ICIUM/ICIUM-2011.cfm

14. Department of Child and Adolescent Health and Development (CAH). Handbook: IMCI integrated management of childhood illness [Internet]. World Health Organization and UNICEF; 2005. Available from: http://whqlibdoc.who.int/publications/2005/9241546441.pdf

15. World Health Organization, UNICEF. Management of Pneumonia in Community Settings [Internet]. 2004; Available from: http://whqlibdoc.who.int/hq/2004/WHO_FCH_CAH_04.06.pdf

16. CORE Group,, Save the Children, BASICS and MCHIP. Community Case Management Essentials: Treating Common Childhood Illnesses in the Community. A Guide for Program Managers. [Internet]. Washington, D.C.: 2010. Available from: http://www.coregroup.org/storage/documents/CCM/CCMbook-internet2.pdf

17. de Sousa A, Tiedje K, Recht J, Bjelic I, Hamer D. Community case management of childhood illnesses: policy and implementation in Countdown to 2015 countries. *Bulletin of the World Health Organization* [Internet] 2012 [cited 2012 Sep 5];90(3):183–90. Available from: http://www.who.int/bulletin/volumes/90/3/11-093989.pdf

18. Wagstaff A; Cleason M. 2004. *The Millenium Development Goals for Health. Rising to the Challenges.* © The World Bank; 2004. Licence: Creative Commons Attribution CC BY Available from: http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2004/07/15/000009486_20040715130626/Rendered/PDF/296730PAPER0Mi1ent0goals0for0health.pdf

19. Oliver K, Young M, Oliphant N, Diaz T, Kim J. Review of Systematic Challenges to the Scale-up of Integrated Community Case Management [Internet]. UNICEF; 2012. Available from: http://www.unicef.org/infobycountry/files/Analysis_of_Systematic_Barriers_cover_1163.pdf

20. Dawson P, Pradhan Y, Houston R, Karki S, Poudel D, Hodgins S. From research to national expansion: 20 years' experience of community-based management of childhood pneumonia in Nepal. *Bull World Health Organ* [Internet] 2008 [cited 2012 Sep 18];86(5):339–43. Available from: http://www.ncbi.nlm.nih.gov/pubmed/18545735

21. Theodoratou E, Al-Jilaihawi S, Woodward F, et al. The effect of case management on childhood pneumonia mortality in developing countries. *Int J Epidemiol* [Internet] 2010 [cited 2012 Sep 18]; 39 Suppl 1:i155–171. Available from: http://www.ncbi.nlm.nih.gov/pubmed/20348118

22. Management Sciences for Health. East Africa Drug Seller Initiative (EADSI) Evaluation Report [Internet]. 2011. Available from: http://www.drugsellerinitiatives.org/publication/east-africa-drug-seller-initiative-eadsi-evaluation-report

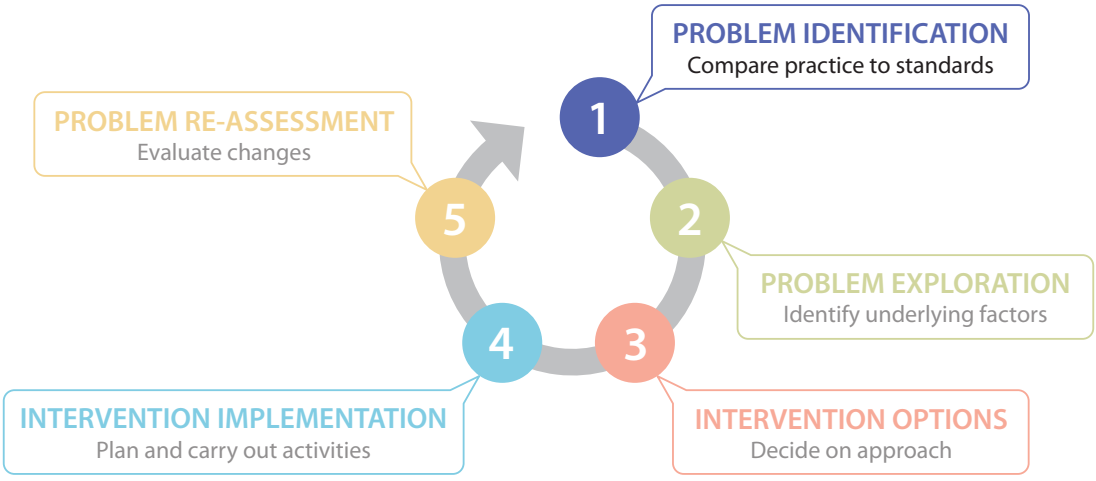
23. Alba S, Hetzel MW, Goodman C, et al. Improvements in access to malaria treatment in Tanzania after switch to artemisinin combination therapy and the introduction of accredited drug dispensing outlets - a provider perspective. *Malaria Journal* [Internet] 2010 [cited 2012 Apr 2];9(1):164. Available from: http://www.malariajournal.com/content/9/1/164

24. Alba S, Dillip A, Hetzel MW, et al. Improvements in access to malaria treatment in Tanzania following community, retail sector and health facility interventions—a user perspective. *Malar J* [Internet] 2010 [cited 2012 Sep 5];9:163. Available from: http://www.malariajournal.com/content/9/1/163

25. Center for Pharmaceutical Management. 2003. Defining and Measuring Access to Essential Drugs, Vaccines, and Health Commodities: Report of the WHO-MSH Consultative Meeting, Ferney-Voltaire, France, December 11–13, 2000. Prepared for the Strategies for Enhancing Access to Medicines Program. Arlington, VA: Management Sciences for Health. http://projects.msh.org/seam/reports/measuring_access_Dec2000.pdf

26. INRUD. Promoting Rational Drug Use Course - Framework for Changing Drug Use Practices - Session 9 Guide [Internet]. 2000;Available from: http://archives.who.int/prduc2004/rducd/INRUD_2000_CDROM/PRDU_Course/Session_Guides/9_FRAMESGfinal.doc

# Chapter 1. Identify Problem




## Introduction

Timely use of medicines is an essential component of treating common acute child illnesses such as respiratory infections, diarrhea, and malaria, as well as chronic pediatric illnesses like HIV infection, Type 1 diabetes, or asthma. Effective treatment for childhood illness involves making decisions and taking actions at different places in the health system. This chapter introduces a framework for identifying and prioritizing problems that can interfere with the effective use of medicines to treat sick children.

## Care Pathway for Using Medicines Appropriately to Treat a Sick Child

The process for treating a sick child involves several linked steps (framework 2). Effective care requires caregivers to make the right decisions when a child becomes ill; health providers and caregivers to exchange appropriate information at the point of care; and health system managers and health care providers to prepare the health care system to deliver adequate care and medicines.

While this guide focuses primarily on sick children and their access to medicines, an effective care pathway also encompasses access to health commodities such as bed nets and vaccines that prevent children from becoming sick or prevent illnesses from recurring.

### *Essential Role of Caregivers*

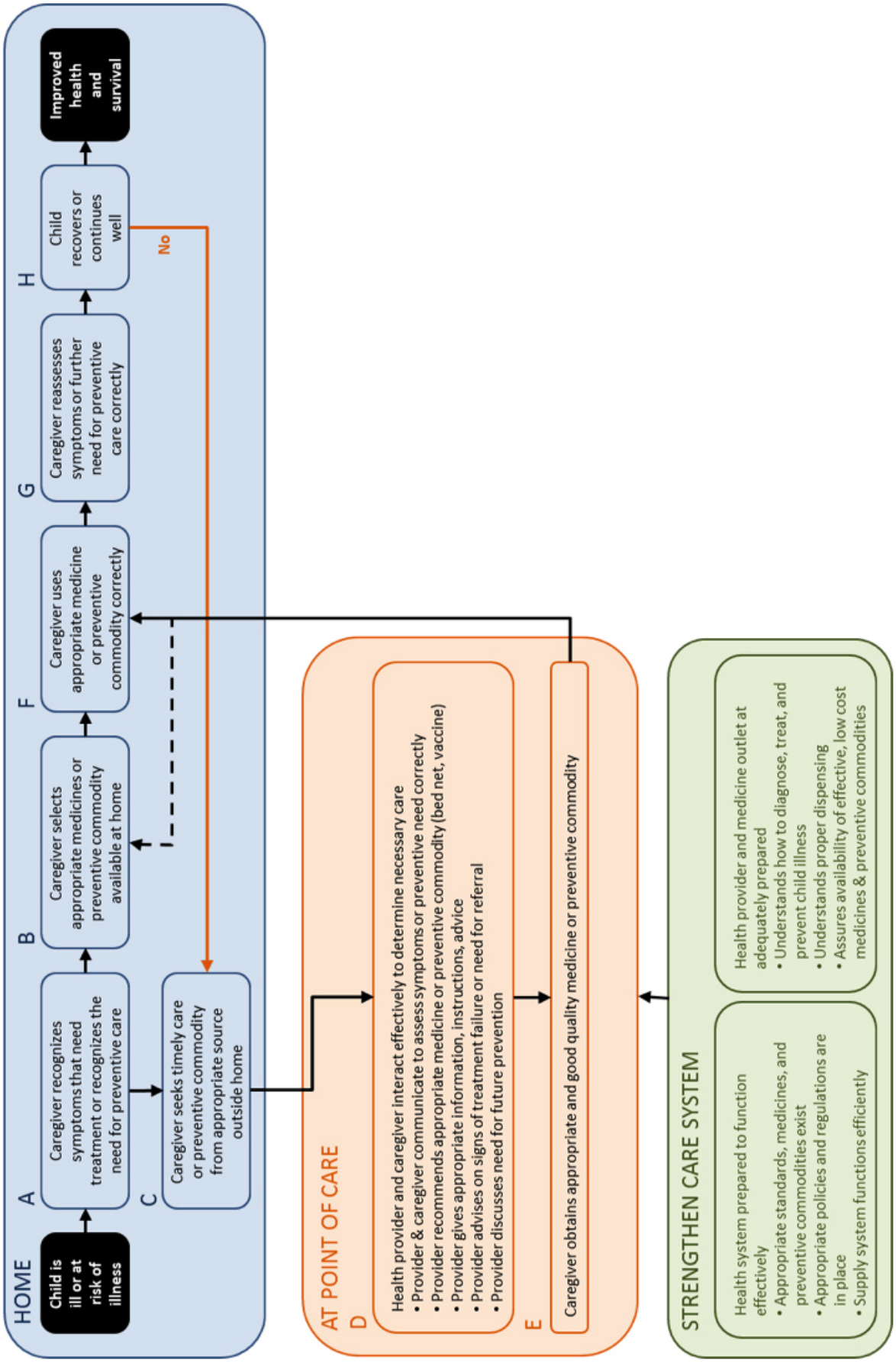
When a child becomes ill, the caregiver must make timely and informed decisions:

- *Prior to treatment*: The caregiver must recognize symptoms and decide whether the child needs further assessment or treatment by a practitioner or whether they need preventive care. (framework 2, step A)
- *After deciding that treatment is needed*: The caregiver must decide whether the child can be treated successfully at home.
  - If the child can be treated at home (framework 2, steps B, F–H), the caregiver must select an appropriate treatment available at home, administer the treatment correctly, assess changes in the child's symptoms, and decide if additional care is needed.
  - If the child needs care outside of home (framework 2, steps C-H), the caregiver must decide where to seek care, be able to describe the problem and respond to questions, obtain any necessary medicines, and then treat the child according to recommendations.

When a child is well, caregivers can also take action to prevent future illness:

- After recognizing the need for preventive care: a caregiver must use preventive commodities (e.g., bed nets) correctly (framework 2, step B) or seek out preventive commodities at an appropriate public or private outlet (step C).

**Framework 2. Care Pathway for Managing and Preventing Child Illness**



### *Importance of Interactions at the Point of Care*

When care takes place outside of the home, the caregiver and provider must interact effectively to identify the proper treatment. Clear communication at the point of care is needed to determine the correct treatment (framework 2, step D).

- The caregiver and health provider must exchange information about the sick child (health history, description of complaints and observed signs, initial treatment) to assess symptoms correctly and arrive at a more accurate diagnosis.

- The health provider must recommend appropriate medicines and provide accurate information to the caregiver about expected benefits and possible side effects of each medicine, instructions on when and how to take it and for how long, and when to expect symptoms to recede.

- The health provider must also inform the caregiver how to recognize signs that the treatment is not working, and when and where to take the child for further treatment if the child's health does not improve or if new symptoms develop.

- When a caregiver seeks preventive care or when an opportunity to discuss future prevention arises, the caregiver and provider must interact to identify appropriate preventive commodities.

## Strengthening Health Care Systems and Provider Skills

Providing high quality treatment to sick children outside of the home requires efficient and effective health care systems and well-prepared health care providers (framework 2, "Health Care System Preparation"):

- **Health care infrastructure:** For the health care system to function effectively, appropriate policies to ensure adequate care, regulatory structures, and treatment guidelines must be in place. The pharmaceutical supply system also needs to function effectively so that the necessary medicines and preventive commodities are available and affordable where needed.

- **Health care providers and medicines suppliers:** Health care providers must understand how to diagnose and appropriately treat childhood illnesses and how to dispense the medicines correctly. Caregivers also need reliable access to effective, low-cost, quality medicines and preventive commodities (framework 2, step E).

## Identifying Problems That Can Occur in the Care Pathway

Many factors can interfere with the delivery of timely and appropriate care for sick children, such as failure to recognize or diagnose illness, barriers in accessing health care or medicines, inappropriate recommendations for treatment, or using medicines inappropriately. Such problems are not unique to child illnesses and correcting them can help to strengthen the entire health system. Similarly, opportunities to use preventive commodities can be missed for many reasons, including caregivers failing to recognize need, providers missing chances to discuss prevention with caregivers, or supply system failures.

### *Targeting Assessments on Specific Aspects of the Care Pathway*

A comprehensive problem assessment would usually require a substantial amount of time and a large budget. A more feasible approach is to target one or two parts of the care pathway (e.g., home, provider, medicine outlet, delivery system, policy level) or specific decision or action points (e.g., care seeking, choice of therapy, behavior at the point of care, adherence to treatment). Many types of problems can occur at each step (table 1-1). Different methods will be needed to assess the magnitude and importance of problem, to understand why it is occurring, and to prevent or solve it.

When a problem is detected, the working group should target the assessment to the most relevant parts of the care pathway (e.g., caregivers, health providers, practices at home, care in health facilities, processes in private retail outlets.)

### *Case examples:*

- The national team focusing on the Integrated Management of Childhood illness (IMCI) quality of care is concerned that provider skills may be an issue. The team decides to examine provider knowledge and skills, prescribing, patient knowledge, and medicines supply in a sample of public health centers.

- The National Malaria Team is concerned that children with fever are treated indiscriminately with antimalarials without adequate testing. The team decides to conduct a household survey to learn about care seeking for recent cases of fever in children, and then to observe point of care interactions with providers in the locations where these patients sought treatment.

- The Community Case Management (CCM) implementation team is concerned that community health workers (CHWs) are not following the national CCM guidelines when treating children. The team plans to conduct a survey of the knowledge and skills of existing CHWs, examine their treatment records, and survey supervisors in local health facilities to learn about the quality of supervision.

**Working Group Activity**
Identify the specific illnesses and the areas in the care pathway that are of greatest interest, summarize what is already known about problems in these areas, and discuss the scope of what their organizations can feasibly do to address them. This will help to target the range of topics and methods in the problem assessment.

### *Methods for Problem Assessment*

Quantitative methods are commonly used to measure rates or averages of specific events or practices in the care pathway, such as care seeking patterns, availability of medicines, choices of therapy, or adherence to treatment. Quantitative surveys can also be used to measure knowledge, attitudes, or beliefs among caregivers, providers, or system managers. A wide range of quantitative methods (table 1-2) can be used to assess problems in treating children with appropriate medicines:

- **At the care systems level:** pharmaceutical sector review, historical data review, health facility and medicine outlet surveys

- **At home:** household surveys, home medicine inventories, illness recall surveys, direct observation of skills

- **At the point of care:** review of available records, observations of care interactions, simulated patients or customers, or provider and patient/customer interviews following point of care interactions

The best methods to use will depend on the areas of the care pathway targeted, the specific problems to be assessed, available resources in the health care system, and technical resources available to the working group. In many situations, reviews of existing medical, prescription, or pharmacy data and surveys of caregivers and health providers will provide valuable information.

### *Available Tools for Problem Assessment*

The *Community Drug Management for Childhood Illness Assessment Manual* (C-DMCI*)* is a key reference tool aiming at a comprehensive assessment of potential problems in the care of sick children at home and in medicine outlets.[1] C-DMCI addresses all the steps in the care pathway (framework 2):

- At home, the C-DMCI tool measures whether a caregiver:
  - Recognizes symptoms and decides child requires treatment
  - Seeks timely care from an appropriate source
  - Obtains appropriate medicine (awareness of first-line medicines, home availability, source of treatment/medicine, type of medicine)
  - Administers appropriate medicine correctly (first-line medicine, appropriate administration, right dose/duration)

- At the point of care, the C-DMCI tool measures whether the health provider:
  - Keeps appropriate and affordable medicines in stock
  - Understands symptoms and appropriate actions and provides education
  - Assesses symptoms correctly
  - Recommends appropriate medicine or makes referral
  - Provides appropriate information/advice/labeling
  - Advises on signs of treatment failure or need for referral

Other existing tools examine patterns of treatment for child health problems or health system performance. Some tools assess problems throughout the care pathway, others focus on home and community, health facilities, medicines retail outlets, home and health facilities, or health care systems (table 1-3). Each tool requires different skills and human resources, and each produces different types of information. More information about how to implement quantitative and qualitative tools is provided in Chapter 2. In deciding whether to use an existing problem assessment tool, the most important criterion is that it covers the areas of interest in the care pathway that the working group has identified.

### *Performance Indicators*

Clearly defined indicators should be used to measure correct practice or potential problems at different points in the child health care pathway. Table 1-4 lists some questions related to correct practice or to potential problems at each point in the pathway, and gives examples of indicators that can be used to measure them. Different indicators will need to be defined to measure correct practices or problems depending on the focus of a particular assessment.

### *Ethical Issues*

National standards differ in the need for ethical clearance when conducting an assessment in the health care system using methods that involve direct contact with health providers, caregivers, or children. Some countries do not require clearance for assessments conducted by a government department or if the primary purpose for collecting data is quality improvement. However, other countries require that all data collection that involves direct contact with patients be approved in advance by the appropriate government ethics committee or review board. The working group should be sure to follow local requirements governing health system assessments before beginning the work.

Assessment teams may encounter unsafe or illegal practices during data collection, such as use of non-sterile injections or dispensing of prescription-only medicines without prescription. Data collectors should be trained to follow a strict protocol that dictates what to do in these circumstances. Teams may also encounter seriously ill children who have been given an incorrect treatment. The standard protocol should always include referring these children immediately to a trained health care provider.

**Working Group Activity**
After reviewing the available options for problem assessment, identify the specific methods and tools that are the most appropriate for assessing problems in the areas of interest. If no appropriate tool exists, engage local experts to develop appropriate instruments and methods, or adapt existing ones. Also list the explicit questions that should be answered in each area of interest to ensure that explicit indicators of correct practice can be developed and measured during the assessment. Finally, ensure compliance with all requirements for ethical clearance.

### *Case example:*

The National Malaria Team is concerned that children with fever are treated indiscriminately with antimalarials without adequate testing. To quantify the extent of the problem, the team will survey health care facilities to determine:

- The percentage of health care facilities where both recommended first-line antimalarials and diagnostic tests (either malaria blood smear testing or RDTs) are available

- The percentage of children presenting with acute fever who receive a diagnostic test
- The percentage of children with a confirmed episode of malaria who are treated with the recommended first-line antimalarials
- The percentage of children who are treated with antimalarials without a confirmed test

The team also decides to conduct a household survey to better understand community care seeking practices for children with fever, and to determine the percentage of children with a recent fever who were tested for malaria, and the percentage of children who received the recommended first-line antimalarials.

## Prioritizing Problems

A systematic assessment usually identifies a range of problems in treating sick children with appropriate medicines at home and in the community. Since resources to address these problems are often limited, the working group will need a strategy to decide which problems to prioritize. Setting priorities can involve a range of stakeholders including health system policy makers and managers; private health care providers or medicine sellers; community leaders; and representatives of local government, nongovernmental organizations (NGOs), women's organizations, or schools.

One way to establish priorities is to rate the importance of problems according to a set of explicit criteria, where the criteria should be relevant to the stakeholders involved and locally appropriate. Criteria could include the scale of the problem, the health risks involved, the associated costs, and the potential for mounting intervention to impact the problem. Problems with the highest total ratings would be considered the most important and deserving of the most immediate attention. Table 1-5 provides some possible questions to guide rating priorities according to these criteria, as well as an example of a completed priority rating across a set of hypothetical problems.

**Working Group Activity**
After the assessment has been completed and indicators for potential problems have been measured, assemble a relevant group of stakeholders to review the findings from the assessment, discuss the problems identified, and establish priorities about which problems should be addressed first.

## Next Steps after Problem Identification and Priority Setting

Each problem in the care pathway for treating child illness can be influenced by a wide range of internal and external factors. Knowing that a problem exists does not necessarily mean that the working group understands its causes or how to design an intervention to address it.

After the working group and the set of local stakeholders have identified their priorities about which problems to address, the problems must be explored in more depth to design appropriate interventions. The next chapter will introduce some approaches for exploring the causes of problems to develop relevant and practical interventions

# Chapter 1 Tables

## Table 1-1. Problems That Can Occur During the Care Pathway

### *A. At Home and at the Point of Care*

| **Step A. Caregiver recognizes symptoms or need for preventive care** |
|---|
| • Caregiver does not associate certain common symptoms with types of care<br>• Caregiver does not correctly interpret the severity of symptoms<br>• Caregiver decides to treat when treatment is not needed<br>• Caregiver fails to treat when treatment is needed<br>• Caregiver does not recognize need for preventive care |
| **Step B. Caregiver selects appropriate medicine or preventive commodity at home** |
| • Caregiver does not have appropriate medicine or preventive commodity available at home<br>• Caregiver treats with inappropriate medicine from home supply |
| **Step C. Caregiver seeks timely care from appropriate source outside home** |
| • Caregiver does not seek care outside the home<br>• Caregiver delays seeking care outside the home<br>• Caregiver chooses inappropriate source of care |
| **Step D. Health provider/caregiver interaction** |
| *Health provider and caregiver communicate to assess symptoms or preventive need correctly*<br>• Caregiver does not explain symptoms/history fully<br>• Health provider does not seek sufficient information on symptoms/history<br>• Health provider assesses symptoms and decides on treatment without input from caregiver<br>• Health provider does not examine child and recommends treatment based only on history<br>• Health provider and caregiver communication about symptoms/history is inadequate<br>• Health provider does not recognize need for preventive care |
| *Health provider recommends appropriate medicine or preventive commodity*<br>• Health provider recommends inappropriate medicine (ineffective, too costly)<br>• Health provider dispenses inappropriate medicine prescribed by another health provider<br>• Health provider provides inappropriate medicine sought by caregiver |
| *Health provider gives appropriate information instructions, advice*<br>• Health provider fails to instruct/advise caregiver about the illness (causes, progression, danger signs), medicines (side effects, how to take), or referral (when or where to seek care)<br>• Health provider gives incorrect instructions/advice about illness, medicines, or referral |
| *Health provider advises on signs of treatment failure and/or need for referral*<br>• Health provider advice, instructions, or information given to caregiver are misunderstood |
| *Health provider recognizes chance to discuss future prevention*<br>• Health provider fails to discuss need for future prevention (e.g., bed nets, vaccines) |
| **Step E. Caregiver obtains correctly labeled medicine or preventive commodity** |
| • Caregiver obtains inappropriate medicine<br>• Caregiver does not obtain appropriate amount of medicine<br>• Caregiver does not receive any medicine or preventive commodity at all<br>• Caregiver obtains medicine that is not labeled correctly<br>• Caregiver gets no instructions on how to administer medicine or use preventive commodity<br>• Caregiver gets wrong instructions on how to use medicine or preventive commodity<br>• Caregiver receives instructions but does not understand them |

| **Step F. Caregiver uses appropriate medicine or preventive commodity correctly** |
|---|
| • Caregiver does not obtain needed medicine or preventive commodity<br>• Caregiver obtains and administers inappropriate medicine<br>• Caregiver obtains correct medicine or preventive commodity, but administers it incorrectly |
| **Step G. Caregiver reassesses symptoms or further need for preventive care correctly** |
| • Caregiver does not reassess symptoms after administering medication<br>• Caregiver does not correctly interpret changes in symptoms<br>• Caregiver does not correctly assess need for further preventive care |

### *B. At the Health Care Systems Level*

| **Health care system infrastructure** |
|---|
| *Appropriate standards exist*<br>• Standard treatment guidelines (STGs) or preventive care recommendations for childhood illnesses do not exist<br>• Appropriate medicines are not included in STGs or in the essential medicines list (e.g., amoxicillin dispersible tablets for pneumonia or zinc for diarrhea)<br>• Appropriate medicines are not registered |
| *Appropriate policies and regulatory structures are in place*<br>• Appropriate prescribing and dispensing regulations do not exist<br>• Structure or tools to monitor prescribing, dispensing, or stock keeping do not exist |
| *Supply system functions efficiently*<br>• Low cost, effective, affordable medicines or preventive commodities for childhood illnesses are not supplied efficiently<br>• Quality assurance systems do not function adequately and medicines are of poor quality |
| **Health care providers** |
| *Understand how to diagnose, treat, and prevent childhood illnesses*<br>• Health provider does not know how to diagnose and treat childhood illnesses correctly<br>• Health provider does not recognize opportunities for preventing child illness |
| *Understand proper dispensing*<br>• Health provider does not know the principles of appropriate dispensing |
| *Ensure availability of effective and low-cost medicines*<br>• Effective, affordable medicines and preventive commodities are not available at drug outlets<br>• Inappropriate medicines are available at drug outlets<br>• Health provider keeps stock inappropriately (temperature, moisture, light, expiration) |

## Table 1-2. Quantitative Methods to Identify Problems in the Treatment of Sick Children

| | |
|---|---|
| **Methods to Evaluate Health Care Systems** | |
| Pharmaceutical sector review | A pharmaceutical sector review uses a set of data collection tools to assess overall system structure and performance, including regulation, manufacturing, selection, procurement, distribution, and use. |
| Review of historical data | Most health facilities maintain retrospective data that can be used to assess system performance, including utilization reports, prescription records, drug orders, pharmacy stock records, and lab records. |
| Health facility or medicine outlet surveys | A health facility or medicine outlet survey can examine utilization patterns, diagnostic capacity, availability of guidelines and unbiased information, and availability and prices of key medicines. |
| Health provider surveys | Structured questionnaires, responses to standard case scenarios, or semi-structured in-depth interviews can be used to examine training, knowledge, attitudes, and opinions of health providers. |
| **Methods to Assess Problems in Using Medicines at Home** | |
| Household surveys | Household surveys involve collecting information from caregivers in their homes about their knowledge, opinions, or behavior in managing medicines for childhood illnesses. |
| Weekly illness recalls | Caregivers complete questionnaires or real-time diaries about symptoms during a defined period and actions taken to address them. |
| Inventory of home medicine cabinets | During home interviews, data collectors can examine the medicines present in the home to determine availability of essential and non-essential medicines for common illnesses. |
| Direct observations | During home interviews, data collectors can observe caregivers performing tasks for managing sick children, such as preparing oral rehydration salts, medication dosing, or symptom assessment. |
| **Methods to Assess Interactions between Caregivers and Health Care Providers** | |
| Reviews of patient or customer records | Many health facilities, health care providers, pharmacies, and medicine outlets keep records of treatment encounters that can be used to assess utilization or quality of prescribing. |
| Observations during the process of care | Trained observers can collect systematic data (details of history-taking, clinical examination, treatment, or advice-giving) during actual interactions between health providers and caregivers and patients. |
| Simulated cases (mystery clients) | Data collectors are trained to seek treatment at medicines outlets in a standardized way for a child health problem, and record data on history-taking, medicines recommended, or advice giving. |
| Patient exit interviews | Interviews with caregivers as they exit health facilities or medicine outlets can assess perceptions about the care received and whether the process of care followed recommended standards. |
| Health provider interviews | Interviews with health providers can be combined with exit interviews to examine similarities and differences in perceptions about health practices and the overall quality of treatment. |

## Table 1-3. Some Methods and Tools to Identify Problems in Treating Sick Children

[See Chapter 1, Framework 2- Care Pathway for Using Medicines to Manage Child Illness[2]]

### *A. Home, Health Facilities, and Retail Outlets*

| Methods Used | Useful Links |
|---|---|
| Household and provider/outlet surveys | Community Drug Management for Childhood Illness Assessment Manual[1] |
| Health facility and pharmacy survey, household medicines access survey | WHO Operational Package for Monitoring and Assessing Country Pharmaceutical Situations[3] |

### *B. Home and Community*

| Methods Used | Useful Links |
|---|---|
| Ethnography, interviews, participatory assessment | Inventory of Tools to Support Household and Community-Based Programming for Child Survival, Growth, and Development[4] |
| Interviews, observations, focus group discussions | How to Investigate the Use of Medicines by Consumers[5] |
| Household survey, caregiver interviews | Rapid Assessment Procedures to Improve the Household Management of Diarrhea[6] |
| Household medicines access survey | Predictors of Antibiotic Use in African Communities: Evidence from Medicines Household Surveys in Five Countries[7] |
| Household survey (diarrhea) | Home Management of Diarrhea Among Under-Fives in a Rural Community in Kenya: Household Perceptions and Practices[8] |
| Caregiver interviews | Perspectives of Caregivers on Barriers to Accessing Healthcare for the Under-Fives in Butere District, Western Kenya[9] |
| Household survey (malaria) | Basic Documentation for the Malaria Indicator Survey Design and Implementation[10] |

### *C. Health Facilities*

| Methods Used | Useful Links |
|---|---|
| Facility survey | Health facility surveys[11, 12]; What Essential Medicines for Children Are on the Shelf?[13] |
| Patient record review, exit interviews, facility survey | International Network for Rational Use of Drugs (INRUD)/ WHO: How to Investigate Drug Use in Health Facilities: Selected Drug Use Indicators[14] |
| Health facility and pharmacy, household medicines access survey | Overview of Methods for Children Medicines Availability and Pricing Surveys[15] |

### *D. Medicines Retail Outlets*

| Methods Used | Useful Links |
|---|---|
| Pharmacy and counter attendant survey, focus groups, simulated customers | Drug Seller Initiative Toolkit[16] |

### *E. Home and Health Facilities*

| Methods Used | Useful Links |
|---|---|
| Group interviews, illness narratives | Rapid Knowledge, Practices, and Coverage Core Assessment Tool on Child Health[17] |
| Interviews, focus groups, case studies, observations | A Guide to Research on Care-Seeking for Childhood Malaria[18]; BASICS II: Comparing Care-Seeking for Childhood Malaria[2] |
| Interviews, focus groups, case studies, observations | Assessing Safe Motherhood in the Community[19] |

### *F. Health Care Systems*

| Methods Used | Useful Links |
|---|---|
| Key informant interviews, observation, focus groups, mapping and scaling | Designing and Conducting Health Systems Research Projects: Volume 1[20] |
| National policy review, key informant interviews, facility/household surveys | Pharmaceutical Country Profile Data Collection Tool[21] |
| National policy review, survey of health services delivery | Social Audit: A Toolkit a Guide for Performance Improvement and Outcome Measurement[22]; Social Audit in Health Sector Planning and Program Implementation in India[23] |
| Pharmacist and counter attendant survey, focus groups, simulated customers | Proposed Methods and Instruments for Situation Analysis (Roll Back Malaria)[24] |
| Interviews, focus groups, case study | Situation Analysis of the Domestic Production of Essential Medicines in Paediatric Dosage Forms in Ghana[25] |
| National policy review, drug outlet survey, pharmacist and counter attendant interviews | Tools to Support Policy in Maternal, Neonatal, and Child Health in Africa[26]; Utilizing the Potential of Formal and Informal Private Practitioners in Child Survival[27] |
| Interviews, focus groups, case study | "Workhood"- A Useful Concept for the Analysis of Health Workers' Resources?[28] |

## Table 1-4. Examples of Key Questions and Indicators to Assess Quality of Child Health Care

| Care Level | Dimensions and Key Questions | Key Indicators to Measure Quality |
|---|---|---|
| **At Home** | | |
| Caregiver recognizes symptoms or preventive needs and decides to seek care | Do caregivers (CGs) recognize key symptoms? | % of children with key symptoms identified as ill by CGs |
| | Do CGs seek medicines or preventive commodities for children in need? | % of CGs who sought treatment for sick child requiring treatment |
| Caregiver seeks timely care from appropriate source outside home | Do CGs seek timely care given severity of symptoms or preventive care needs? | % of CGs seeking help within a defined period appropriate for symptom severity |
| | Do CGs go to the source for care that is appropriate for the symptoms? | % of CGs seeking help at an appropriate source of care |
| Caregiver selects appropriate home-available medicine | Do CGs have appropriate medicine at home? | % of CGs with appropriate medicine at home to treat common illnesses |
| | Do CGs choose the right medicine to treat child with diarrhea? With a cold? | % of CGs selecting an appropriate home-available medicine |
| Caregiver administers appropriate medicine correctly | Do CGs administer an appropriate medicine? | % of CGs administering medicine appropriate for given symptoms |
| | Do CGs administer medicine correctly? | % of CGs who administer the chosen medicine correctly |
| Caregiver re-assesses symptoms and need for preventive care correctly | Do CGs reassess symptoms correctly after giving medication? | % of CGs who know key symptoms to reassess for specific syndromes |
| | Do CGs correctly interpret changes in symptoms? | % of CGs who correctly understand that a defined change in symptoms indicates worsening of the illness |
| | Do CGs correctly assess need for future preventive care? | % of CGs who correctly assess need for preventive care (e.g., bed nets) |
| **During the Health Provider–Caregiver Interaction** | | |
| Health provider and caregiver interact effectively | Do health providers (HPs) and CGs communicate appropriately to assess symptoms or preventive care needs? | % of HPs who decide on treatment or preventive commodities without asking about illness history or previous care |
| | Do HPs prescribe or recommend appropriate medicines? | % of HPs who prescribe or recommend first-line medicines consistent with national STGs |
| | Do HPs give appropriate information and advice? | % of HPs who provide key information with dispensed medicines (how to take, for how long, possible side effects) |
| | Do HPs advise on signs of treatment failure | % of HPs who inform CGs of key signs of treatment failure |
| | Do HPs provide advice about referral? | • % of HPs who recommend referral if child fails to improve<br>• % of caregivers who comply with referral recommendation |

| Care Level | Dimensions and Key Questions | Key Indicators to Measure Quality |
|---|---|---|
| Caregiver obtains appropriate, correctly labeled medicine | Do CGs obtain appropriate medicine or preventive commodity? | % of CGs who receive medicine or preventive commodities consistent with national guidelines |
| | Do CGs receive correctly labeled medicines? | % of dispensed medicines that are correctly labeled |
| | Do CGs know how to use the medicines they obtain? | % of CGs who understand how to use medicines dispensed correctly |
| **At the Health Care System Level** | | |
| Care system is prepared to function effectively and efficiently | Are appropriate policies and regulations in place for HPs? | Existence of appropriate licensing standards for all HPs and facilities |
| | Are appropriate policies and regulations in place for drug manufacturers? | Existence of adequate regulatory standards for manufacture and promotion of medicines |
| | Do appropriate standards exist to define best practice in treating and preventing childhood illnesses? | • Existence of up-to-date STGs for common childhood illnesses<br>• Existence of a National Essential Medicines List |
| | Does the supply system work efficiently? | % of health facilities with all recommended first-line treatments and preventive commodities in stock |
| Health provider and drug outlet are adequately prepared | Are trained HPs available to treat childhood illnesses? | % of HPs meeting defined standards of training for their duties |
| | Do HPs know how to diagnose childhood illnesses correctly? | % of HPs who know the key symptoms for common childhood illnesses |
| | Do HPs know which medicines and preventive commodities it is important to keep in stock? | % of HPs who know key first-line medicines and preventive commodities for common childhood illnesses |
| | Do HPs know what to communicate to patients about medicines? | % of HPs who know key information to communicate during dispensing |
| | Do HPs know the principles of appropriate labeling? | % of HPs who know key information to include on medicines label |
| | Are good quality, first-line, and affordable medicines and preventive commodities available at drug outlets? | % of outlets that have good quality, first-line, and affordable medicines in stock |
| | Are unsafe medicines available in drug outlets? | % of outlets with unregistered medicines in stock |

## Table 1-5. Use of a Systematic Rating Process to Prioritize Problems

| Review Criteria | Example Questions to Guide Rating on this Criterion |
|---|---|
| Scale of the problem | • Is this a problem of public health significance?<br>• How many people are affected?<br>• Does the problem affect high-risk populations (e.g., poor, certain ethnic groups, women and girls, people in rural areas)? |
| Health risks involved | • What are the major health consequences of the problem?<br>• Can the problem result in death or serious illness among children?<br>• Is the illness an infectious disease that can spread to other children in the community? |
| Associated costs | • How much does the problem cost to the health system (medicines or other direct and indirect costs)?<br>• What will be the economic impacts of not addressing the problem? |
| Potential for mounting interventions | • How deeply rooted are the problem behaviors?<br>• How likely is it that an intervention will change them?<br>• Are there important economic barriers to mounting an intervention?<br>• Are resources likely to be available to address the problem? |

The following table provides a hypothetical example of rating a set of problems identified during an assessment by using these criteria.

| | Rating 1 (least) to 5 (most) important | | | | |
|---|---|---|---|---|---|
| Problem Identified | Scale | Health risks | Cost | Potential impact | Total rating |
| Caregivers stock expensive cough mixtures to treat cough and colds | 3 | 2 | 4 | 2 | 11 |
| Private physicians prescribe expensive analgesics for fever | 2 | 1 | 3 | 3 | 9 |
| Most children receive antibiotics for mild respiratory infections | 4 | 5 | 4 | 5 | 18 |
| Private drug shops recommend antidiarrheals for children | 2 | 5 | 3 | 3 | 13 |
| Mothers delay seeking treatment for high fevers | 2 | 5 | 3 | 3 | 13 |
| Private physicians and drug sellers are not aware of child health guidelines | 4 | 3 | 3 | 5 | 15 |
| Most caregivers trust brand name medicines over generics | 4 | 1 | 4 | 3 | 12 |
| Drug shops do not stock the recommended antibiotic for pneumonia | 3 | 2 | 3 | 2 | 10 |
| Public sector physicians refer patients who can afford it to their private practices | 3 | 1 | 4 | 2 | 10 |

# Chapter 1 Reference List


1. Nachbar, N., J. Briggs, O. Aupont, et al. 2003. Community Drug Management for Childhood Illness: Assessment Manual. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health. [Internet]. Available from: http://pdf.usaid.gov/pdf_docs/PNACY415.pdf

2. Baume, C. *Comparing Care-seeking for Childhood Malaria. Lessons from Zambia and Kenya* [Internet]. Arlington, VA: Basic Support for Institutionalizing Child Survival Project (BASICS II) for the United States Agency for International Development.; 2002. Available from: http://pdf.usaid.gov/pdf_docs/PNACQ728.pdf

3. WHO. WHO Operational Package for Monitoring and Assessing Country Pharmaceutical Situations. Working draft. [Internet]. 2005; available from: http://archives.who.int/tbs/monitoring/workingdraft.pdf

4. United Nation's Children's Fund (UNICEF). An Inventory of Tools to Support Household and Community-Based Programming for Child Survival, Growth, and Development. [Internet]. 1999; available from: http://www.unicef.org/health/files/health_UNICEF_inventory.pdf

5. Hardon, A., Hodgkin, C., Fresle, D. How to Investigate the Use of Medicines by Consumers [Internet]. 2004. Available from: http://whqlibdoc.who.int/hq/2004/WHO_EDM_PAR_2004.2.pdf

6. Herman, E., Bentley, M. Rapid Assessment Procedures (RAP) to Improve the Household Management of Diarrhea. [Internet]. 1993; available from: http://www.nzdl.org/gsdlmod?e=d-00000-00---off-0fnl2.2--00-0----0-10-0---0---0direct-10---4-----stt--0-1l--11-en-50---20-about-Rapid+Assessment+Procedures+%28RAP%29+to+Improve+the+Household+Management+of+Diarrhea.--00-0-1-00---4----0-0-11-1-0utfZz-8-00&a=d&c=fnl2.2&cl=search&d=HASH01eb1c9188df54800d74a4c6.8.pr

7. Vialle-Valentin, C. E., Lecates, R. F., Zhang, F., Desta, A. T., Ross-Degnan, D. Predictors of Antibiotic Use in African Communities: Evidence from Medicines Household Surveys in Five Countries. *Trop. Med. Int. Health* [Internet] 2012 [cited 2012 Sep 18];17(2):211–22. Available from: http://onlinelibrary.wiley.com/doi/10.1111/j.1365-3156.2011.02895.x/full

8. Othero, D. M., Orago, A. S. S., Groenewegen, T., Kaseje, D. O., Otengah, P. A. Home Management of Diarrhea among Under Fives in a Rural Community in Kenya: Household Perceptions and Practices. *East Afr. J. Public Health* [Internet] 2008 [cited 2012 Sep 17];5(3):142–6. Available from: http://www.bioline.org.br/request?lp08026

9. Opwora, A. S., Laving, A. M., Nyabola, L. O., Olenja, J. M. Who is to Blame? Perspectives of Caregivers on Barriers to Accessing Healthcare for the Under-Fives in Butere District, Western Kenya. *BMC Public Health* [Internet] 2011 [cited 2012 Sep 17];11(1):272. Available from: http://www.biomedcentral.com/1471-2458/11/272

10. Roll Back Malaria. Basic Documentation for Survey Design and Implementation [Internet]. 2005. Available from: http://whqlibdoc.who.int/publications/2005/9241593571_eng.pdf

11. WHO. Department of Child and Adolescent Health and Development. Health Facility Survey Tool to Evaluate the Quality of Care Delivered to Sick Children Attending Outpatient Facilities (Using the IMCI Clinical Guidelines as Best Practices). [Internet]. 2003; available from: http://whqlibdoc.who.int/publications/2003/9241545860.pdf

12. Gitanjali, B., Manikandan, S. Availability of Five Essential Medicines for Children in Public Health Facilities in India: A Snapshot Survey. *J. Pharmacol. Pharmacother.* [Internet] 2011 [cited 2012 Sep 18];2(2):95–9. Available from: http://www.ncbi.nlm.nih.gov/pubmed/21772768

13. Robertson, J., Forte, G., Trapsida, J.-M., Hill, S. What Essential Medicines for Children are on the Shelf? *Bull. World Health Organ*. [Internet] 2009 [cited 2012 Sep 17];87(3):231–7. Available from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2654638/

14. Bimo, A. Chowdhury, A. Das, at al. How to Investigate Drug Use in Health Facilities: Selected Drug Use Indicators. [Internet]. 1993; available from: http://www.who.int/medicinedocs/collect/medicinedocs/pdf/s2289e/s2289e.pdf

15. "Better Medicines for Children Project" Overview of Methods for Medicines Availability and Pricing Surveys. World Health Organization; 2009. available from: http://www.who.int/childmedicines/progress/ChildMeds_pricing_surveys.pdf

16. Drug Seller Initiative Toolkit [Internet]. [cited 2012 Jan 25]; available from: http://www.drugsellerinitiatives.org/components/

17. Johns Hopkins University (JHU). Rapid Knowledge, Practices, and Coverage (KPC) Core Assessment Tool on Child Health (CATCH). [Internet]. 2000; available from: http://pdf.usaid.gov/pdf_docs/PNACK209.pdf

18. Baume C. A Guide to Research on Care Seeking for Childhood Malaria. Support for Analysis and Research in Africa (SARA) Project and BASICS II for the USAID. [Internet]. 2002; available from: http://www.globalhealthcommunication.org/tool_docs/59/a_guide_to_research_on_care-seeking_for_childhood_malaria_%28f.pdf

19. Nachbar, N., C. Baume, and A. Parekh. Assessing Safe Motherhood in the Community: A Guide to Formative Research. 1998. available from: http://www.jsi.com/JSIInternet/Inc/Common/_download_pub.cfm?id=10472&lid=3

20. Varkevisser, C. M., I. Pathmanathan, and A. Brownlee. Designing and Conducting Health Systems Research Projects: Volume 1. [Internet]. 2003. Credit to International Development Research Center and KIT Publishers available from: http://web.idrc.ca/en/ev-33011-201-1-DO_TOPIC.html

21. WHO. Pharmaceutical Country Profile Data Collection Tool [Internet]. 2010; available from: http://www.who.int/medicines/areas/coordination/Empty_English_Questionnaire.pdf

22. Centre for Good Governance. Social Audit: A Toolkit A Guide for Performance Improvement and Outcome Measurement [Internet]. Hyderabad: 2005. Available from: http://unpan1.un.org/intradoc/groups/public/documents/cgg/unpan023752.pdf

23. Lahariya, C., Puri, M. Social Audit in Health Sector Planning and Program Implementation in India. *Indian Journal of Community Medicine* [Internet] 2011 [cited 2012 Sep 18];36(3):174. Available from: http://www.ijcm.org.in/text.asp?2011/36/3/174/86515

24. WHO. Proposed Methods and Instruments for Situation Analysis. (Roll Back Malaria) [Internet]. 1999; available from: https://extranet.who.int/iris/restricted/handle/10665/66466

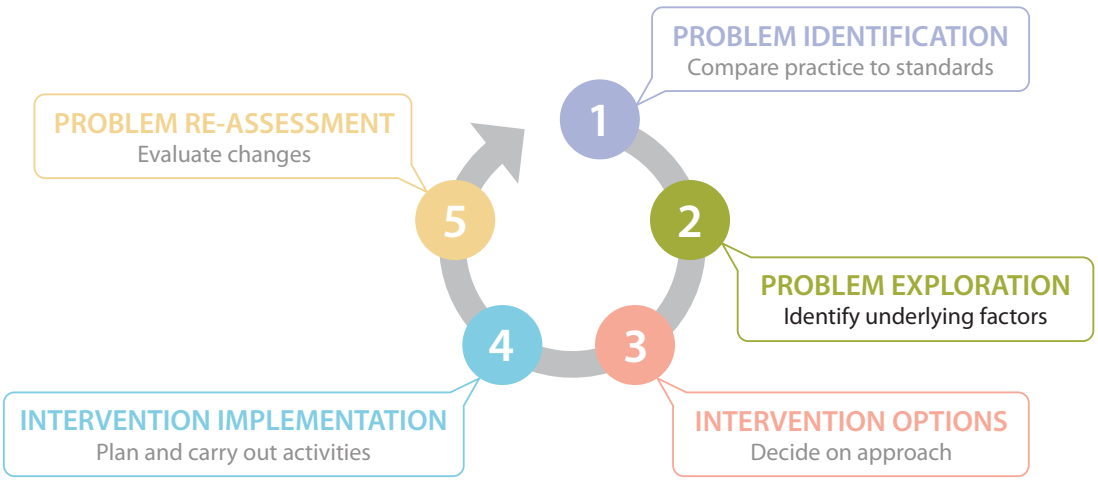
25. Boateng. Situation Analysis of the Domestic Production of Essential Medicines in Paediatric Dosage Forms in Ghana [Internet]. Ghana: 2011. Available from: http://apps.who.int/medicinedocs/documents/s19077en/s19077en.pdf

26. Rudan, I., Kapiriri, L., Tomlinson, M., Balliet, M., Cohen, B., Chopra, M. Evidence-Based Priority Setting for Health Care and Research: Tools to Support Policy in Maternal, Neonatal, and Child Health in Africa. *PLoS Medicine* [Internet] 2010 [cited 2012 Sep 6];7(7):e1000308. Available from: http://dx.plos.org/10.1371/journal.pmed.1000308

27. Tawfik, Y., R. Northrup, and S. Prysor-Jones. Utilizing the Potential of Formal and Informal Private Practitioners in Child Survival: Situation Analysis and Summary of Promising Interventions. [Internet]. 2002; available from: http://pdf.usaid.gov/pdf_docs/PNACP202.pdf
In July 2011, FHI 360 acquired the programs, expertise and assets of AED.

28. Gross, K., Pfeiffer, C., Obrist, B. "Workhood"-A Useful Concept for the Analysis of Health Workers' Resources? An Evaluation from Tanzania. B*MC Health Serv. Res.* [Internet] 2012 [cited 2012 Sep 6];12:55. Available from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3330008/

# Chapter 2. Explore Problem




## Introduction

This chapter describes how exploratory studies using quantitative, qualitative, or mixed methods can help identify the causes of a problem and provide the information needed to design an effective intervention.

Many factors can contribute to problems in treating sick children with appropriate medicines, including the behaviors and beliefs of individual caregivers or health providers, as well as factors in the external community or health system (table 2-1). A systematic assessment of how each factor contributes to a problem will help highlight the most relevant issues.[1]

Key issues to answer about a problem identified in the study would include:

- Why is this problem occurring?
- Which types of providers or caregivers experience the problem?
- Who could provide greater insight about this problem?
- Which specific things would need to change to improve the situation?
- What would encourage or prevent the desired behaviors?
- What else must be known before trying to intervene?

## Key Steps in Planning an Exploratory Study

### *Review What Is Already Known*

The first step is to review existing information from published studies, unpublished reports by government agencies or NGOs, or available data from the health system. One useful resource for published information is the searchable on-line bibliography on medicines use maintained by the International Network for Rational Use of Drugs (INRUD).

**Working Group Activity**
Set up a process to identify gaps in current knowledge that need to be addressed in an exploratory study. Some members may be very familiar with current evidence about what causes the identified problem(s); if not, the working group may wish to commission a brief review to collect and analyze available information.

### *Formulate Specific Questions*

Many different types of questions can be addressed in an exploratory study (table 2-2), but the study will be more focused if it tries to limit the number of questions, such as how household economics might be influencing problem behaviors, or how mistaken beliefs about illness by health providers or caregivers are contributing to the problem. When formulating questions, stakeholders' perspectives should be included because differences in their beliefs and perceptions will often lead to additional areas to explore.

### *Case Example*

Following a review of health center treatment records for children under age 5 with diarrhea, members of the National Child Health Team decided that they needed to focus on problems in physician treatment practices. Before launching an intervention, the team members formulated a series of questions they felt would teach them more about the causes of poor practice, help them decide if an intervention was feasible, and if so, figure out how to target it appropriately, define specific intervention messages, decide on implementation details, and develop monitoring indicators (table 2-3).

**Working Group Activity**
Develop a list of key questions to answer about what is causing the observed problem and what it might take to improve the situation. Initially, generating a long list of questions is easier than focusing on a small number of key questions. However, the working group should carefully weigh the importance of each question to narrow the focus of the exploratory study.

### *Choose Which Exploratory Methods to Use*

Both quantitative and qualitative methods can be used to explore the causes of a problem:

- *Quantitative methods* used for exploratory work, such as questionnaires or structured observations, can provide information about the extent of the problem, but they may not be the best choice for an in-depth exploration of complex issues.
- *Qualitative methods* such as focus groups or in-depth interviews are good at exploring some of the complex reasons why problems occur, but they usually require an experienced person to implement them and analyze the resulting data.

Five methods are widely used to explore problems before developing interventions.

- Questionnaires to survey practices, knowledge, and attitudes
- Structured observations of the process of care or home treatment
- Simulated caregiver visits in which trained data collectors observe provider behavior
- In-depth interviews with individual key informants
- Focus group discussions

Each method has its own strengths and weaknesses, some of which are described briefly in table 2-4. Other available resources that describe methods and tools to explore problems are included in table 2-5. Examples of some data collection instruments for several frequently-used methods that can be modified for use in a child health exploratory study are included in annex 2-1.

The choice about which exploratory methods to use should be based on:

- Strengths and weaknesses of different methods
- Nature of the identified problems
- Whether the problems involve caregivers, health providers, the care system, or all three
- Scope and authority of the organization developing the intervention
- Resources and time available to explore the problem
- Local capacity and previous experience with exploratory methods

Generally, trying to answer a question using more than one method is a useful way to understand an issue from different perspectives ("triangulating" findings).

### *Determine How Many Participants to Include and How to Select Them*

The quality and reliability of the results of an exploratory study depend on how health facilities, providers, and caregivers are selected for the sample and how many are included.

- *Selecting participants.* Samples should be representative of the target population of health facilities, health providers, and caregivers to maximize learning and minimize bias. There are two main types of samples: probability samples and non-probability samples. Exploratory studies frequently use small non-probability samples, so the working group must take care to ensure representativeness.

- *Sample size.* Larger sample sizes usually increase the reliability of results, but collecting data from larger samples is also more expensive.

  - A general rule is to include at least 30 respondents in each important subgroup. For example, an exploratory study might compare 30 simulated caregiver visits in urban pharmacies with an equal number in rural medicine outlets.

  - In-depth interviews and focus groups aim to collect qualitative information about practices, beliefs, and opinions. If results are consistent within a certain subgroup (e.g., female caregivers under age 30), only 2-3 focus groups or 4-5 in-depth interviews per subgroup may be needed. If results in a subgroup are inconsistent, additional focus groups or interviews can be added until the reasons for the inconsistencies are understood.

### *Develop a Plan for Fieldwork*

Some exploratory studies that use multiple methods implement all of them at the same time in the same geographic locations. This requires coordinating roles within the field team and carefully scheduling work. In other situations, one component is completed first, such as using focus groups to develop items for a questionnaire. Another example would be to observe health provider-caregiver interactions before conducting in-depth interviews to avoid biasing behaviors during the observations.

The field team will include people with different backgrounds and skills. Depending upon the methods chosen, the team may include supervisors, interviewers, observers, simulated clients, translators, and administrative staff (table 2-6). Many exploratory studies require people who are skilled in interviewing. Effective interviewers are those who are familiar with the health care system and local culture, can listen well, are fluent in the local language, are self-assured, and are able to gain confidence and trust.

Many primers and study guides exist to teach researchers and program managers how to implement exploratory studies (table 2-5). Although training is useful, previous field experience is the most important; however, identifying an experienced resource person to assist with planning field work may be challenging. The relevant competencies include:

- Possess good powers of observation
- Be able to analyze situations critically
- Recognize and avoid bias in selecting study subjects and asking questions
- Interact effectively with both study participants and members of the study team

People who might be able to help with overall study design or with implementing specific exploratory methods include:

- Public health nurses or social workers who have experience interacting with community members may be appropriate for conducting focus groups or in-depth interviews

- Nursing or pharmacy students who have some understanding of health care issues might be able to conduct observations or simulated visits

- Social scientists with backgrounds in anthropology, sociology, psychology, or health communication may have appropriate training in using several exploratory methods

**Working Group Activity**
Unless a member of the working group has the necessary expertise, identify an appropriate resource person to assist with overall design and implementation of the exploratory study. This resource person will help the group select appropriate methods to answer the priority study questions, define who would be included in the samples selected, and develop a plan for conducting field work and reporting results.

## Reporting Results from Exploratory Studies

Exploratory studies often generate a large amount of information that is difficult to organize and synthesize. Each method produces separate data, findings, and conclusions. The study team implementing one method may not know about the findings from other teams. Summarizing data from multiple methods to draw conclusions can be time consuming and complicated. Researchers have developed different strategies for combining results from multiple components of an exploratory study. Whichever synthesis process is used, remember to take into account all available data and to stay focused on their implications for intervention design.

After all of the components of an exploratory study have been completed, it may be efficient to organize a data summary meeting where all of the results can be shared with the working group and members of the different study teams. The meeting may last from one to three days, depending on the size of the group, scope, and the complexity of the exploratory studies. The next sections describe one possible approach for organizing the meeting.

### *Report Results of Each Study Separately*

Each team that conducted one of the study components should present its results. All presentations should cover, at a minimum, the specific questions addressed, details of the groups studied, methods used, a review of results, and a brief discussion of conclusions. Short written summaries of the findings and key tables or graphs should be distributed to all meeting participants. Discussion after each individual presentation should be limited to clarifying methods or results. Detailed discussion of specific findings or their implications for intervention design can wait until all of the separate reports have been presented.

Sometimes findings will suggest important issues to consider during later discussions about interventions. Each issue can be recorded in a visible place (e.g., on poster paper) as it is raised, but not discussed at length. By compiling such a list, all relevant issues will be covered in the integrated discussion to follow.

### *List All Data Relevant to Each Study Question*

Each method used in an exploratory study addresses specific questions; some questions will be addressed by more than one method, each from a different viewpoint. Following presentations of individual components, the group can proceed one by one through the topics and questions formulated at the beginning of the study. Additional questions raised during the presentations can be considered where they fit best. As each question is discussed, everyone at the meeting should be able to contribute to the following types of information:

- Specific related findings from one or more of the exploratory studies, usually in the form of a quantitative result, a table, or a graph
- Quotations or anecdotes that capture a key insight
- Opinions or conclusions about the issue, either personal or as stated by the study teams during the presentations

Each contribution can be recorded by a rapporteur in brief summary form, mentioning the source for the data (e.g., prescribing survey, focus group with physicians, patient exit interviews, personal opinion). Order is not important. Depending on the number of meeting participants, this step might be easier in smaller subgroups with each assigned to a particular topic.

### *Develop a Summary for Each Study Question*

An overall summary of results should reflect what is known from all methods used about each question, with implications about the intervention design. The summary can be a series of simple statements. All types of findings can be included in the summary; even contradictory findings can be useful in pointing to areas that need more attention.

Because the community plays a key role in ensuring the success of child health interventions, sharing information about the problem and engaging community members will improve program acceptance. Study information can be shared by organizing a presentation of summary findings in a public forum, such as a community meeting or small gatherings of key groups (mothers, fathers, medical care providers, traditional healers, etc.) in schools, churches, or markets.

### *Case Example*

Table 2-7 shows the data sources used to answer the study question and the relevant results for a diarrhea study conducted by the National Child Health Team. This format may be useful for presenting summary findings. Table 2-8 provides a summary for the question concerning differences in care across settings for the diarrhea study conducted by the National Child Health Team.

**Working Group Activity**
Convene a data summary meeting involving all working group members, any resource persons involved in the exploratory study, team leaders from individual study components, and other stakeholders who might have useful perspectives. All key study results should be presented orally, so that participants do not have to read and digest written reports. The output from this meeting should be a summary of the conclusions of the exploratory study and implications for the design and implementation of an intervention.

## Next Steps

At this point, the working group has assessed, identified, and prioritized problems related to appropriate care for sick children, and conducted an exploratory study to understand the underlying causes and how an intervention might address them. The next step is to consider intervention options. The following chapter introduces a wide range of possible interventions that can be directed at caregivers, health providers, or at the health system as a whole to improve the access to and use of medicines for child illnesses in the community.

# Chapter 2 Tables

### Table 2-1. Examples of Factors That Can Contribute to Problems in Using Medicines Correctly in Treating Childhood Illnesses

| INTERNAL Factors | EXTERNAL Factors |
|---|---|
| **Knowledge about correct treatment**<br>**Caregiver:** Does not know correct timing, frequency, or dose of recommended antibiotic for pneumonia<br>**Health provider:** Does not know recommended antibiotic, or timing, frequency, or dosing for treating pneumonia in young children | **Availability or access to care**<br>**Caregiver:** Lives several hours away from health center or retail drug shop that has essential medicines for child illnesses in stock<br>**Health provider:** Does not routinely prescribe or dispense the recommended rapid diagnostic test or medicine to treat malaria |
| **Confidence in identifying problem**<br>**Caregiver:** Does not feel able to interpret signs of difficulty breathing indicating serious respiratory illness<br>**Health provider:** Does not feel confident in differential diagnosis of malaria and pneumonia in a young child with fever. | **Social norms**<br>**Caregiver:** Follows advice of neighbors when seeking treatment for fever or administering the medicines obtained<br>**Health provider:** Drug shop attendants model the practices of private physicians by recommending medications not considered first line for the illness |
| **Skills in treating problem**<br>**Caregiver:** Unable to mix oral rehydration solution (ORS) as recommended<br>**Dispenser:** Does not fill in the correct information on the label for the dispensed medicine | **Economic factors**<br>**Caregiver:** Unable to afford entire course of therapy for treating malaria and lacks resources to take child back to the health facility when the disease progresses<br>**Health provider:** Profit motivation and economic incentives from manufacturers to drug sellers increase recommendations of new, expensive antibiotics |
| **Perceptions about illness progression**<br>**Caregiver:** Believes that child with a fever will recover without any medicines<br>**Health provider:** Believes that a child with mild ARI needs an antibiotic to prevent bacterial infection | **Other systems-related factors**<br>**Caregiver:** Unbiased information about medicines is not available<br>**Health provider:** Too many customers or patients to spend time taking history, explaining illness or medicines, or giving advice about danger signs and when to return |
| **Cultural and professional beliefs**<br>**Caregiver:** Believes inaccurate local conceptions about causes of diarrhea in a child who is weaning<br>**Health provider:** Believes injections are superior even when they are not necessary | |

## Table 2-2. Types of Questions that Can Be Addressed in Exploratory Studies

### *Describing a Problem in Greater Detail*

- Do practices vary by geographic location, health facility, drug outlet, or health provider?
- How do specific knowledge deficits among caregivers or health providers contribute to problem practices?
- Which areas of knowledge are deficient: symptom recognition, diagnosis, recommended treatment, dosing, etc.?
- What caregiver or health provider characteristics are associated with good or poor practices?
- Do caregivers and health providers think that their practices in managing childhood illness are the same as those of their peers?
- Does practice vary by specific symptoms, diagnoses, characteristics of caregivers, time of month, seasonality, etc.?

### *Determining the Feasibility of Certain Interventions*

- What type of information do caregivers and health providers exchange?
- How do caregivers and heath providers interact (settings, duration of interaction, one-way or two-way exchange of information)?
- How often do caregivers in different settings express a preference for a certain medicine or type of therapy?
- How satisfied are caregivers with the care they receive in different settings?
- Which aspects of care contribute to greater patient satisfaction?
- How important is satisfying patients and customers to health providers?
- Do health providers try to educate caregivers about their child's illness, about the medicines they prescribe, or about appropriate preventive care?
- Are there constraints in the work environment that prevent health providers from changing their practices, such as staff shortages, time pressure, lack of diagnostic capability, erratic supply of medicines?
- How do health providers change their practices when recommended medicines are not available?
- Are health providers aware of any deficiencies in their practices?
- Are health providers interested in improving their clinical practice?
- Would local administrative authorities support of an intervention to improve the identified problems?

### *Targeting an Intervention*

- Are there particular types of caregivers, facilities, or health providers with poor or even harmful practices?
- Is there any relationship between the practices of an individual health provider and the group in which he or she practices?
- Are there features of the social, cultural, or behavioral context that could be used to influence the practices of individual health workers or caregivers?
- Are there particular individuals whose opinion is especially influential with caregivers or health providers?
- Would it be possible to recruit these opinion leaders to assist in implementing an intervention?
- Do some problem behaviors appear very resistant to change?

### *Defining Specific Intervention Messages*

- Could specific misconceptions about practice be changed by providing scientific facts?
- Are there specific areas of miscommunication between patients and health providers that can be highlighted in an intervention?
- What kinds of educational materials are available to health providers or patients?
- When health providers or patients have changed in the past, what was it that caused them to change?
- How do health workers or patients respond to prototype intervention materials?

### *Deciding on an Intervention's Format or Style*

- What sources of information do caregivers and health providers use to learn about health problems or about medicines?
- What educational programs have health providers already received?
- Which model of education is most highly rated by the potential target group: seminars, workshops, individual sessions, visits by opinion leaders, etc.?
- How often do health providers interact with pharmaceutical company representatives?
- What type of information from pharmaceutical companies is available?
- Do caregivers and health providers have access to any unbiased sources of medicine information?
- Are there any ways for health providers to review their own practices: regular utilization reports, practice audits, departmental reviews, etc.?
- How do health providers respond when given summaries of their own practices?

## Table 2-3. Specific Questions Addressed in an Exploratory Study about Pediatric Diarrhea Treatment

| Purpose | Questions Explored |
|---|---|
| **To describe the problem in greater detail** | • How do treatment practices in health centers managed by the municipality, the university, and the state government compare to national diarrhea treatment guidelines?<br>• Do all physicians diagnose and treat diarrhea in the same way? How do physicians think that other physicians manage diarrhea?<br>• Is inadequate knowledge about diarrhea treatment common among physicians and caregivers? What specific knowledge deficits exist? |
| **To decide if an intervention is feasible** | • How satisfied are caregivers with different kinds of treatment they receive? How important is maintaining caregiver satisfaction to physicians?<br>• Do physicians believe that caregivers are capable of learning about diarrhea and its treatment? Would physicians or other staff members actually have time to counsel caregivers? |
| **To target the intervention** | • How often do caregivers ask directly for specific types of treatment? How do physicians respond when asked? Are there nonverbal ways that caregivers influence physicians?<br>• To which respected peers do physicians turn with questions about treatment? How often do physicians approach colleagues with medical questions? |
| **To define intervention messages** | • How important to physicians is being seen as knowledgeable or up-to-date? Could this appeal be used as part of an intervention?<br>• When physicians changed their practices in the past, what stimulated them to do so? How do they feel about previous changes in practice?<br>• To decide on details of the intervention<br>• Do physicians receive any continuing education? How do they feel about different continuing education modalities: group seminars, visits by medical experts, visits by pharmacists?<br>• Which journals do physicians read? Do they learn about medicines from package inserts, advertisements, or company representatives?<br>• How would physicians respond when presented with summaries of their own practice or the practice in their health centers in relation to other physicians or facilities? |
| **To decide on monitoring indicators** | • Are there currently any pediatric treatment indicators included in the routine health information system?<br>• How could data on diarrhea treatment in children be efficiently extracted from medical and pharmacy records in health centers?<br>• Which measures of prescribing and dispensing for diarrhea would be most meaningful to physicians, health center administrators, and municipal government leaders? |

## Table 2-4. Strengths and Weaknesses of Different Methods for Exploring the Causes of a Problem

| Method | Description | Key features | Strengths | Weaknesses |
|---|---|---|---|---|
| **Structured questionnaire** | A defined set of items asked to a large sample of respondents; can be selected to represent a larger population | • Useful for learning about knowledge, opinions, and reported behavior<br>• Questions asked in a standard way with closed or open-ended responses<br>• Sample size depends on the target population, how they are sampled, desired level of accuracy, and available resources<br>• Usually at least 30 respondents from each important subgroup | • Results expressed in a quantitative way with defined margins of error<br>• Familiar to managers and respondents<br>• Required skills often locally available | • Results sensitive to which questions are asked and how they are worded<br>• Respondents often answer a question even if they have no true opinion<br>• Large surveys can be expensive |
| **In-depth interview** | Extended discussion between a respondent and an interviewer based on a brief interview guide that usually covers 10-15 general topic areas | • Open-ended topics are explored by directed conversation rather than fixed questions<br>• Can target key informants, opinion leaders, or others in key positions<br>• About 5–10 interviews may be enough to get a good feel for the most important issues<br>• If the target group is diverse, generally 5–10 interviews would be held with each important subgroup | • Flexible and allows probing<br>• Can lead to unexpected insights<br>• Creates trust between interviewer and respondent<br>• Less restrictive than a questionnaire<br>• Useful with illiterate respondents | • Data analysis can be difficult and requires a special skill set<br>• Bias toward socially acceptable or expected responses<br>• Requires well-trained interviewers |
| **Focus group discussion** | Extended (1.5–2 hours) discussion led by a moderator in which a small group of respondents talks in depth about a defined list of topics of interest | • 6–10 people promotes equal participation<br>• Participants usually share common characteristics (e.g., age, class)<br>• Led by moderator who keeps topics in focus<br>• Free, open sharing of ideas<br>• Tape recorded and notes kept by assistant and analyzed at later time | • Elicits beliefs and opinions of a group<br>• Provides richness and depth<br>• Generally easy and inexpensive to organize | • Need for skilled moderator<br>• May not represent true feelings<br>• Data analysis can be difficult<br>• Potential for bias in analysis |

| Method | Description | Key features | Strengths | Weaknesses |
|---|---|---|---|---|
| **Structured observation** | Systematic observations by trained observers of encounters between health providers and patients | • Observer introduces non-threatening explanation and spends enough time to "blend in"<br>• Data can be recorded as coded indicators, scales, list of behaviors/ events, diary of impressions<br>• To count frequency of behaviors, usually at least 30 cases in each category of interest<br>• To understand typical features, a few cases in 5–6 settings may be enough | • Best way to study complex provider-patient interactions<br>• Can learn about provider behavior in its natural setting<br>• Best way to learn about patient demand, quality of communication | • Behavior may not be natural because of observer's presence<br>• Requires skilled, patient observers<br>• Not useful for infrequent behaviors |
| **Simulated customer or simulated patient** | A research assistant, prepared in advance to present a standard complaint, visits drug outlets or health providers seeking treatment in order to determine their practices towards that complaint | • Usually sample 30+ drug outlets or health providers<br>• Can collect data on many aspects of practice, including history-taking, examination, treatment, or advice<br>• Frequently used to examine practices in private pharmacies<br>• Scenario for standard complaint can be varied to explore variations in practice (e.g., watery vs. bloody diarrhea) | • When combined with questionnaires or interviews, can compare knowledge and reported practice with actual practice<br>• Relatively quick and easy to conduct<br>• Data simple to analyze | • Response may be specific to the scenario presented<br>• Research assistants can vary in reliability<br>• Collecting data while hiding purpose may be considered an ethical problem<br>• Need adequate sample size of visits to obtain a reliable picture |

## Table 2-5. Examples of Methods and Tools for Exploring Problems with Treating Sick Children in Different Settings

| Setting | Methods | Useful Links |
|---|---|---|
| All stakeholders | Mapping | Mapping the Motivations of Stakeholders to Enable Improved Tuberculosis Control[1] |
| Home and community | Interview/survey | Rapid Assessment Procedures to Improve the Household Management of Diarrhea[2] |
| Home, community, and health facilities | Key informant interviews, focus groups, observation, projective techniques, mapping, and scaling | Designing and Conducting Health Systems Research Projects (especially Chapter 10)[3] |
| | In-depth interviews | Why Caretakers Bypass Primary Health Care Facilities for Child Care - A Case from Rural Tanzania[4] |
| Home, community, and region/country | Survey, community surveillance | A Guide to Conducting Mortality Surveys and Surveillance[5] |
| | Caregivers survey | Caregiver Recognition of Childhood Diarrhea, Care Seeking Behaviors and Home Treatment Practices in Rural Burkina Faso: A Cross-Sectional Survey[6] |
| Home and health facilities | Group interview, illness narrative | A Guide to Research on Care-Seeking for Childhood Malaria[7] |
| Home, health facilities, and medicines retail outlets | Illness narrative, interview | Improving Community Case Management of Childhood Malaria: How Behavioral Research Can Help[8] |
| Community | Focus groups | A Manual for the Use of Focus Groups[9] |
| | Interview, focus groups, survey | Qualitative Methods in Health Research: Opportunities and Considerations in Application and Review[10] |
| | In-depth interviews, focus groups, observation | Contextual Influences on Health Worker Motivation in District Hospitals in Kenya[11] |
| Community and health facilities | Interviews, focus groups, attitude questionnaires, observation | INRUD: How to Use Applied Qualitative Methods to Design Medicines Use Interventions[12] |
| Health facilities and medicines retail outlets | Interviews, observations, focus groups, document search | DAP/WHO: How to Investigate Community Use of Medicines[13] |
| | Focus groups, pharmacist and shop attendant survey | Drug Seller Initiative Toolkit[14] |

### Table 2-6. Work Responsibilities of Field Team Members

| Field Team Member | Responsibility |
|---|---|
| Supervisors | • Coordinate field work<br>• Monitor the performance of interviewers<br>• Assure the quality and consistency of data collection |
| Interviewers | • Guide respondents from topic to topic<br>• Record responses from in-depth or structured interviews |
| Focus group moderators | • Organize and run focus group sessions<br>• Take notes about the topics discussed without affecting the flow of a discussion |
| Observers | • Record data during health care encounters according to a predefined protocol |
| Simulated customers or patients | • Present a standardized scenario to health care providers<br>• Observe and later record details about communication and recommendations for care |
| Translators | • Translates when field staff and respondents do not speak a common language |
| Administrative staff | • Communicate with individuals and facilities to be visited<br>• Handle administrative details such as scheduling and finances |

## Table 2-7. Example of a Summary of Findings Based on an Exploratory Study on Pediatric Diarrhea Treatment

*Question: Are treatment practices the same in health centers managed by the municipality, the university, and the state government?*

| Data Source | Data Item | | | |
|---|---|---|---|---|
| **Prescribing survey** | % of cases receiving | Municipality | University | State government |
| | ORS | 51% | 24% | 53% |
| | Zinc | 43% | 8% | 39% |
| | Antibiotic | 22% | 49% | 16% |
| | Metronidazole | 11% | 16% | 31% |
| **Exit interviews** | Patients at the municipal and state government clinics tend to be of lower socioeconomic status than those at the university health centers. | | | |
| **Observations** | The waiting area and consultation rooms tend to be more crowded, dirtier, and less comfortable in municipal clinics. | | | |
| **Observations** | Examination time is significantly longer in university clinics (4.7 minutes) compared to municipal (2.3 minutes) or state government (2.5 minutes) facilities. | | | |
| **Patient in-depth** | Patients see the university physicians more as specialists and experts compared to other physicians. | | | |
| **Physician in-depth** | Physicians in municipal and state clinics report that they have been trained in the WHO diarrhea case management protocol, but university physicians have received no such training. | | | |
| **Physician in-depth** | University physicians tend to see ORS and zinc as first-aid that patients can receive at a public clinic, so they often do not bother to prescribe it. | | | |
| **Personal opinion** | University physicians have a more developed network of opinion leaders than physicians working in municipal or government facilities. | | | |
| **Exit interviews** | A similar percentage of patients report being "satisfied" or "very satisfied" with the care they have received in all clinics (84% in municipality; 89% in university; 76% in state government). | | | |
| **Patient in-depth** | Patients seem to prefer the medicines they get at the university clinics (usually brand names), but they generally do not like to go there for "simple" problems like diarrhea because the fees are higher. | | | |
| **Observations** | Public health nurses were observed carrying out group health education sessions for patients in some of the municipal and state clinics; no sessions were observed in the university clinics. | | | |

## Table 2-8. Example of a Summary of Findings for One Study Question from an Exploratory Study of Pediatric Diarrhea Treatment

**Question:**
*Are treatment practices the same in health centers managed by the municipality, the university, and the state government?*

**Summary:**
Prescribing for diarrhea in municipal and state government health facilities is quite similar, except for metronidazole. ORS (given to about half of children) and zinc (only 43 percent of children) appear to be underused, whereas antibiotics (about 20 percent of patients) are slightly overused. In state facilities, there is considerable overuse of metronidazole (31 percent of patients), but the reasons for the overuse are not known. Examination time is very short in both settings (less than 2.5 minutes).

In university clinics, there is considerably more room for improvement in prescribing. Many more patients receive antibiotics (49 percent), whereas many fewer patients receive ORS (24 percent) or zinc (only 8 percent). Doctors in these clinics have not yet been trained in the WHO case management protocol. However, there may be resistance to such a standard protocol, because doctors seem to believe they use more advanced practices. Engaging opinion leaders in university hospitals will be a necessary component of an intervention in that setting.

Patients are generally satisfied with treatment in all clinics. However, when they can afford the fees, patients appear to prefer university clinics. Possible reasons include: they are seen by the doctor for a much longer time; the staff are perceived as more expert; they receive brand name medicines, including antibiotics; and the general clinic facility is comfortable.

An intervention that would include a patient education component appears quite feasible. Patient education is already being delivered by public health nurses in the waiting areas in municipal and state facilities. Staff members are actually more available in university clinics, but they are not yet being used to provide patient education.

# Chapter 2 Reference List


1. Weil, D., Beith, A., Mookherju, S., Eichler, R. Mapping the Motivations of Stakeholders to Enable Improved Tuberculosis Control: Mapping Tool for Use in Workshops. [Internet]. Management Sciences for Health and Stop TB Partnership.; 2004. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.Available from: https://93c84ae6-a-d7211678-s-sites.googlegroups.com/a/msh.org/rpm-plus/what-we-do/tuberculosis/Mapping_Motivations_for_TB_Control-Workshop_Tool.pdf

2. Herman, E., Bentley, M. Rapid Assessment Procedures (RAP) to Improve the Household Management of Diarrhea. [Internet]. 1993; available from: http://www.nzdl.org/gsdlmod?e=d-00000-00---off-0fnl2.2--00-0----0-10-0---0---0direct-10---4-----stt--0-1l--1l-en-50---20-about-Rapid+Assessment+Procedures+%28RAP%29+to+Improve+the+Household+Management+of+Diarrhea.--00-0-1-00---4----0-0-1l-1-0utfZz-8-00&a=d&c=fnl2.2&cl=search&d=HASH01eb1c9188df54800d74a4c6.8.pr

3. Varkevisser, C., Pathmanathan, I., Brownlee, A. Designing and Conducting Health Systems Research Projects: Volume 1. [Internet]. 2003. Credit to International Development Research Center and KIT Publishers; available from: http://web.idrc.ca/en/ev-33011-201-1-DO_TOPIC.html

4. Kahabuka, C., Kvåle, G., Moland, K. M., Hinderaker, S. G. Why Caretakers Bypass Primary Health Care Facilities for Child Care - A Case from Rural Tanzania. *BMC Health Serv. Res.* [Internet] 2011 [cited 2012 Apr 12];11:315. Available from: http://www.biomedcentral.com/1472-6963/11/315

5. Kalter, H., Salgado, R., Gittelsohn, J., Paredes, P. A Guide to Conducting Mortality Surveys and Surveillance. [Internet]. 2004; available from: http://www.basics.org/documents/pdf/Guide%20mortality%20surveys%20&%20surveillance.pdf

6. Wilson, S. E., Ouédraogo, C. T., Prince, L., et al. Caregiver Recognition of Childhood Diarrhea, Care Seeking Behaviors and Home Treatment Practices in Rural Burkina Faso: A Cross-Sectional Survey. *PLoS ONE* [Internet] 2012 [cited 2012 Sep 17];7(3):e33273. Available from: http://dx.plos.org/10.1371/journal.pone.0033273

7. Baume, C. A Guide to Research on Care Seeking for Childhood Malaria. Support for Analysis and Research in Africa (SARA) Project and BASICS II for the USAID. [Internet]. 2002; available from: http://www.globalhealthcommunication.org/tool_docs/59/a_guide_to_research_on_care-seeking_for_childhood_malaria_%28f.pdf

8. Baume, C., Kachur, P. Improving Community Case Management of Childhood Malaria: How Behavioral Research Can Help [Internet]. 1999. Available from: http://pdf.usaid.gov/pdf_docs/PNACJ021.pdf
In July 2011, FHI 360 acquired the programs, expertise and assets of AED

9. Dawson, S., Manderson, L., Tallo, V. A Manual for the Use of Focus Groups [Internet]. 1993; available from: http://whqlibdoc.who.int/publications/1993/0963552228.pdf

10. National Institutes of Health (NIH) Office of Behavioral and Social Science Research. Qualitative Methods in Health Research: Opportunities and Considerations in Application and Review. [Internet]. 2001; available from: http://obssr.od.nih.gov/pdf/qualitative.pdf

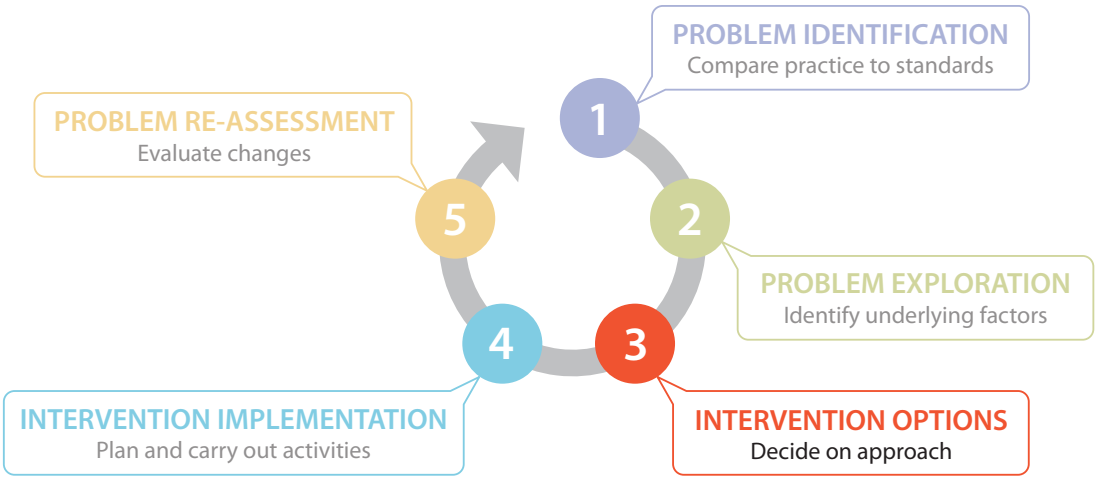
11. Mbindyo, P., Gilson, L., Blaauw, D., English, M. Contextual Influences on Health Worker Motivation in District Hospitals in Kenya. Implement Sci [Internet] 2009 [cited 2012 Sep 6];4:1–43. Available from: http://www.implementationscience.com/content/4/1/43

12. International Network for Rational Use of Drugs (INRUD). How to Use Applied Qualitative Methods to Design Drug Use Interventions [Internet]. 1996; available from: http://archives.who.int/prduc2004/rducd/how_to_use_applied_qualitative_m.htm

13. Hardon, A., Hodgkin, C., Fresle, D. How to Investigate the Use of Medicines by Consumers [Internet]. 2004; available from: http://whqlibdoc.who.int/hq/2004/WHO_EDM_PAR_2004.2.pdf

14. Drug Seller Initiative Toolkit [Internet]. [cited 2012 Jan 25]; available from: http://www.drugsellerinitiatives.org/components/

# Chapter 3. Choose An Intervention




## Introduction

The first part of this chapter introduces a general framework for understanding interventions aimed at changing health behaviors. The second part describes how this framework can be used to design interventions that can improve how caregivers treat sick children, how health care providers recognize and treat child illness, and how health care systems are organized to treat childhood illnesses with the appropriate medicines.

## Changing Health Behavior

Many theories exist to explain why people engage in specific health behaviors and how to encourage positive changes. Framework 3 below presents four broad categories of interventions that have been used to improve health behaviors, including use of medicines by health providers and caregivers:

- **Educational:** using education programs to inform, persuade, or motivate
- **Economic:** using financial incentives to penalize or subsidize
- **Managerial:** using management tools to guide, systematize, or facilitate
- **Regulatory:** using policies to regulate, prohibit, or sanction

These four approaches target problems in different ways. Successful interventions usually include components from more than one category, such as coordinated educational activities, guidelines, incentives, and policies targeting behaviors by providers, caregivers, and health care system managers.

A number of systematic literature reviews have been conducted by members of the Cochrane Collaboration about the effectiveness of different types of interventions to improve use of medicines in industrialized countries[1,2,3,4,5,6,7,8,9,10,11]—the Canadian Agency for Drugs and Technologies in Health maintains a comprehensive database on this topic.[12] Unfortunately, there have been few systematic reviews of the large amount of accumulated experience with conducting interventions to improve use of medicines in low and middle income countries.[13,14,15,16,17] Nonetheless, there are useful recommendations about sound overall policy approaches at the national level and good instructional material on developing interventions to promote rational medicines use.[18,19,20,21,22] The most effective interventions usually incorporate input from stakeholders at all levels.

## Changing Behaviors Related to Health Care for Children

As described in Chapter 2, problems in treating sick children with appropriate medicines can be due to a variety of internal and external factors such as deficits in knowledge or confidence, economic barriers to proper care, or social norms that contradict adequate practice (table 2-1). This chapter will provide an overview of many options to improve care at different steps in the childhood illness care pathway (framework 2, in Chapter 1). Many intervention examples to improve use of medicines for children are also available on the website of the International Conferences on Improving Use of Medicines (ICIUM).

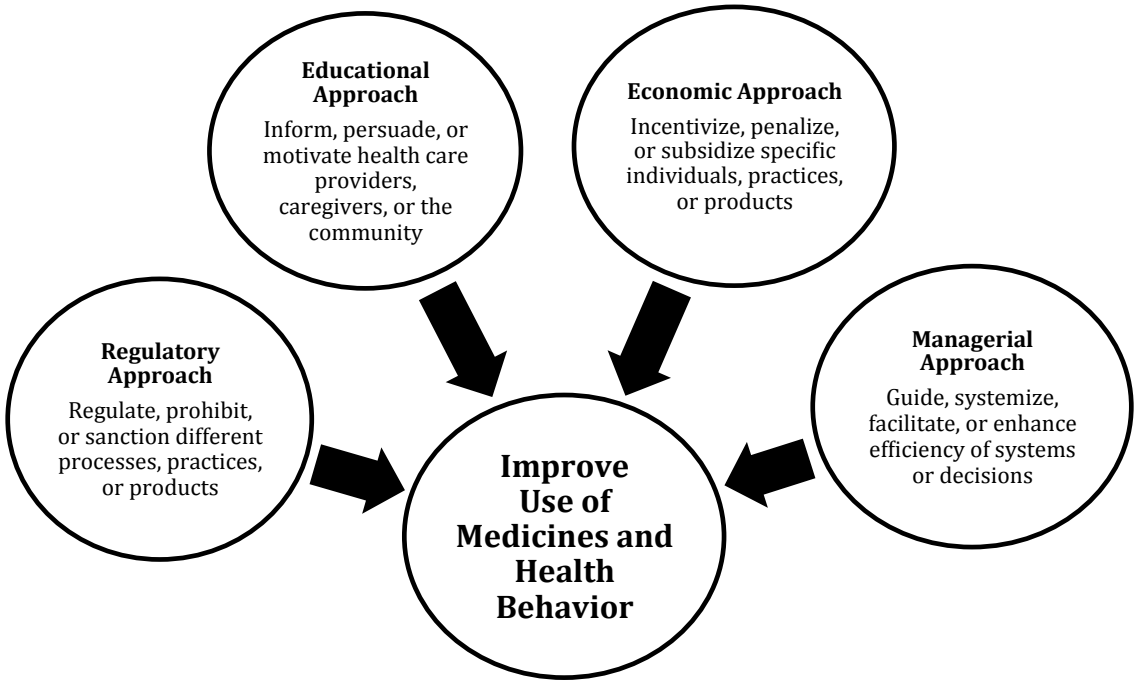
This guide can be used by groups working to implement interventions at different levels in the health system.

- At the community level: Within a given community, many types of health providers can care for sick children, including community health workers, licensed retail drug shops, public health facility staff, or private physicians. Provincial or district health offices or community health boards often have responsibility for the quality of health care within their area or jurisdiction. In improving care for children, working groups of the health offices or boards may target the community as a whole or a range of public and private health care providers.

- At the health facility level: Hospital medical directors or the officers in-charge at public health centers are responsible for care in their health facilities or within their catchment areas. Interventions led by teams working at this level will frequently take place within the health facilities themselves, sometimes or in collaboration with groups in the surrounding community.

- At the national or system level, groups such as the child health division of the Ministry of Health or the national office of a mission health program develop programs that can improve care for children. These groups typically focus on interventions with broad reach, perhaps involving changes in national policy, systems, or training programs.

**Working Group Activity**
Before settling on an intervention strategy, consult with all stakeholders (including community and private sector representatives) about their capacities to participate in an intervention targeting the previously identified problems in care. Also, gather the latest evidence about how similar problems have been addressed in other settings.




**Framework 3. Four broad approaches to improve use of medicines or preventive health behaviors**

No simple rules exist on how to design interventions to improve access and use of medicines for child illness. Choosing the best combination of intervention components in a given situation depends on the nature of the problem behavior, the characteristics of the people involved, the health system context, and the resources available to mount the intervention. Table 3-1 describes some of the key features of each approach and lists some examples.

Most interventions aiming to change health behaviors involve an educational process intended to communicate information to a target group (e.g., caregivers, health providers, health system managers) with the goal of persuading them to behave differently. Education frequently improves knowledge but can fail to change behavior unless the educational approach includes persuasive elements. Background materials about how to design *persuasive education* can be found in annex 3-1.

**Working Group Activity**
To increase the chance of success, focus on a small number of key problem behaviors. Interventions that discourage a few specific negative behaviors or that promote a small number of positive behaviors are generally more effective than more diffuse or broad-based interventions. The group should highlight the specific behaviors to be addressed, and develop persuasive educational messages and a coordinated strategy to deliver them to the target group.

## Improving Caregiver Skills in Using Appropriate Medicines

The majority of child illnesses are managed at home without any interaction with a health care provider. Common problems faced by caregivers are related to—

- Symptom recognition and decisions about care seeking
- Selection of an appropriate medicine available at home
- Ability to use the health system effectively if care is needed
- Communication with health care providers when seeking care out of the home
- Adherence to appropriate therapy
- Prevention behavior

Table 3-2 provides examples of specific aspects of the treatment of sick children that can be addressed in interventions targeting caregivers.

### *Educational Interventions Directed at Caregivers*

Educational messages can reach different groups of caregivers in different ways. These types of persuasive educational interventions for caregivers can take place in a variety of health care and community settings (table 3-3). A comprehensive educational campaign should communicate similar information about appropriate care of child illness through many different channels to increase the chance of these messages reaching various groups of mothers and caregivers.

Mass media can extend an educational intervention's reach and impact. Exploratory interviews or focus groups can help to identify which communication channels are most likely to reach specific target groups. The feasibility of developing an effective mass media approach depends on the popularity of local channels of communication, the amount of resources available, and the availability of local technical expertise to produce materials.

### *Economic Interventions Directed at Caregivers*

Economic factors are important barriers to recommended behaviors, especially for the poor and those without access to subsidized care. Caregivers often need access to financial resources to manage a child's illness. Health care fees, transportation, and medicines can strain resources, sometimes to the point of imposing catastrophic costs on families. Affordability plays a major role in determining when and where a caregiver seeks care, and limits the type and amount of services obtained. In public health facilities, user fees and charges for medicines can limit seeking or obtaining needed care. Even if services are free for some patients, policies about user fees are frequently misunderstood by community members, especially those who are poor, have low literacy, or who do not use public health facilities regularly.

Table 3-4 describes some economic approaches directed at caregivers that can be used to reduce some of the financial barriers to care. The main approach is to lower the cost of appropriate care by eliminating or reducing user fees, lab test charges, or medication copayments for some or all patients or for essential child health services.

Pre-paid risk protection schemes, such as community-based insurance schemes or national social insurance, can lower the cost of care. Microfinance programs that provide small loans to deal with financial needs arising from child illnesses have also been successfully implemented in a variety of for-profit and nonprofit settings. Government health facilities, private clinics, and community organizations (e.g., schools, churches) can coordinate with local insurance programs and microfinance schemes to facilitate access to affordable care.

### *Supportive Managerial and Regulatory Interventions Directed at Caregivers*

Managerial interventions that target caregivers are intended to provide materials that help them manage medicines for child illness. These might include simple, visual, step-by-step guides for knowing when a child is ill, for seeking appropriate care, and for taking medicines. Another approach is to assist mothers and drug sellers to make more informed medication choices for common illnesses through an over-the-counter medicine formulary that they can use when purchasing medicines in private drug shops.

Regulations can also support better choices by caregivers. Some countries require the information on medicines labels to be consumer-friendly and tailored to people with low literacy. Prominently displaying the generic name of a medicine and the suggested retail price of a medicine on its label can guide consumer choice. In addition, many countries have established regulations about the ethical promotion of over-the-counter medicines to consumers.

## Encourage Health Providers to Improve Recognition and Treatment of Illnesses

The overall quality of care for child illness depends greatly on the readiness of health care providers and how they interact with caregivers. Many common problems in treating children with appropriate medicines are related to health care providers' diagnostic, clinical decision-making, or communication skills. Table 3-5 gives an overview of some of the specific aspects of the sick child care pathway that can be addressed in interventions aimed at health care providers.

### *Educational Interventions for Health Care Providers*

Educational interventions directed at health care providers should be designed with a persuasive educational framework. Research has shown that a larger impact can be obtained by following some key principles described in table 3-6. Persuasive education ideally involves multiple contacts over a period of time to build trust, to repeat and reinforce messages, to answer questions or concerns as new approaches are tried, or to communicate additional messages. Repeated contacts can also be used to facilitate peer group interaction. Individual health care providers who learn that they behave differently from peers may be more motivated to change.

Many types of print materials can be used to support educational programs for health care providers. Many types of materials can be designed to be used by providers at the point of care to make it easier to follow recommended practices and to communicate consistent messages to patients or customers. Annex 3-1 describes some of the ways that print materials can be more effective in supporting behavior change.

Educational/persuasive interventions targeting private pharmacies and medicine shops should focus both on managers and on counter attendants. Managers may have had some training in pharmacy or health care, but they manage the store and sometimes have no direct contact with customers. Interventions can help them to make better decisions about what medicines to stock, which to recommend for specific childhood illnesses, and how to set standards for their staff. Counter attendants often have no prior training in clinical issues. Interventions can teach them basic health information and how to communicate more effectively with customers. In some settings, supervisory training can facilitate better practices. For example:

- Training pharmacists or owners how to supervise counter attendants who work in their shop regarding quality of dispensing and communication with customers
- Training local health workers or staff from the drug regulatory authority to supervise staff in retail settings or to teach them about specific health problems or skills

### *Economic Interventions for Health Care Providers*

Reducing costs of care can influence patterns of care seeking and appropriate treatment for caregivers. Some consumers are sensitive to price; with adequate information, they will tend to choose lower cost, equally effective treatments. Economic interventions may also be the most powerful way to improve the treatment of child illness by health providers. Economic forces operate continuously, are self-reinforcing, and can be used to guide prescribing and dispensing of medicines in desired directions.

Health care providers may be more willing to follow recommended practices if they are rewarded in some way for doing so. Table 3-7 presents some possible economic approaches directed at both prescribers and dispensers in both the private and public sectors that can improve the cost-effective treatment of sick children with appropriate medicines. While economic incentives can be an effective way to improve private sector behavior, they are certainly not the only approach. Educational, managerial, and regulatory approaches can be effective in the private sector as well, either alone or in combination with economic incentives.

### *Managerial and Regulatory Interventions Aimed at Health Care Providers*

Managerial interventions targeting health care providers vary according to the types of health providers and the settings in which they practice. Table 3-8 presents some common managerial interventions directed at health care providers, many of which are best suited for providers working in the public sector or in other organized health systems. In the private sector, developing an over-the-counter formulary for common childhood illnesses is an important approach to consider because it helps private retailers to dispense appropriate medicines while helping caregivers make more informed medication choices.

Establishing standards for professional practice and monitoring the performance of public and private health care professionals can improve quality of care. Setting and enforcing practice standards for health professionals requires partnerships with medical and pharmaceutical societies that dictate standards or continuing professional education requirements in many countries. Table 3-9 provides a list of possible intervention approaches to improve the overall quality of health professional and pharmacy practice.

### *Continuous Quality Improvement Methods*

Continuous Quality Improvement (CQI) is a quality management approach that engages providers working together in a local clinical setting in identifying problems and then implementing sequential small-scale process changes to increase efficiency and improve outcomes. CQI methods emphasize the collection and display of objective data to monitor changes in care processes. CQI techniques are complementary to the five-step approach on which this manual is based and have been successfully used in interventions to improve child health.[23, 24]

## Strengthening Health Systems to Facilitate Better Performance

Adequate strengthening of the health care system, developing a more efficient medicines supply chain, and implementing sound health and pharmaceutical sector policies are essential to improve access and use of medicines for children. While many of these system-level improvements may be out of reach for a local implementation team, they need to be understood since they can either facilitate or block progress. Table 3-10 provides an overview of some areas where health systems strengthening approaches can support improvements in treating sick children with the appropriate medicines.

### *Interventions to Improve Supply of Pediatric Medicines*

A well-prepared health system is crucial for delivering high quality care for sick children. Managerial and regulatory interventions can target specific health system structures or processes to guide or facilitate more efficient or cost-effective child health care. Proper care for children depends on a well-functioning medicines supply system that can ensure the continuous availability of affordable essential medicines. If public and private sector medicines supply systems do not function efficiently, this will cause problems in availability and affordability of medicines and in quality of care. Thus, interventions strengthening medicines supply systems

contribute to a better treatment of child illnesses with appropriate medicines. Interventions to strengthen medicines supply systems and quality assurance aim at—

- Adopting standard operating procedures for selection, procurement, and distribution of quality medicines[25]
- Improving the efficiency and reliability of medicines distribution and stock systems[26]
- Implementing routine monitoring and supervision of supply system practices[27]

Table 3-11 describes some approaches to support managerial and regulatory strategies to improve caregiver and health care provider behaviors described earlier through improvements in the preparation, efficiency, and quality of care in the public and private sectors and in the pharmaceutical supply system.

### *Policies Targeting Manufacturers and Distributors*

For effective child health care, safe, effective, and affordable products have to be available to caregivers when and where they are needed. Pharmaceutical manufacturers and distributors are therefore key stakeholders in efforts to improve child health care. National regulations and institutional policies must assure that practices in the pharmaceutical supply system are not harmful. If possible, the regulations and policies should encourage greater availability and affordability of essential pediatric medicines and support the registration and supply of pediatric formulations for recommended medicines. Table 3-12 provides some examples of policies targeting pharmaceutical manufacturers and distributors that can guide prescribers, dispensers, and consumers toward better child health practices.

### *Civil Society Monitoring*

Civil society monitoring is an important accountability mechanism at the community level and can play a critical role in strengthening health systems. Members of village health committees or community organizations, representing all socioeconomic groups in the community (including women, the poor, or the marginalized) can regularly monitor health services, verify the effective presence of health workers and medicines in health care centers, and strengthen the relationship between health workers and the communities they serve.

**Working Group Activity**
Discuss the full range of possible intervention approaches and begin to develop strategies to facilitate the desired changes in caregiver, health provider and health system behavior. Consider educational, managerial, economic, and regulatory approaches to addressing the identified problems. The selection of specific intervention components should take into account the usual activities of different stakeholders and their willingness to participate in implementation.

## Next Steps after Examining Intervention Options

The next chapter describes how to put together and implement a complex intervention that uses several of the approaches described above to address a problem in use of medicines for child illness. Experience has shown that complex, multifaceted interventions targeted to a specific setting have the best chance for improving behavior.

# Chapter 3 Tables

### Table 3-1. Key Aspects and Examples of Four Common Approaches to Changing Health Behavior

| Approach | Key Aspects | Examples |
|---|---|---|
| Educational | • Educate targeted audience to seek and deliver better care<br>• Provide information to caregivers or health providers to correct knowledge or skill deficits<br>• Encourage people to try new behaviors and motivate them to maintain those changes<br>• Actively transmit information that is more likely to change behaviors | • Pictorial educational materials for low-literacy caregivers<br>• One-on-one or small group education for health workers<br>• Mothers' over-the-counter medication self-learning group<br>• Educational session on childhood illnesses at health centers, schools, churches<br>• TV/radio spots or village drama groups<br>• Community educational programs to ensure that new exemption policies are understood |
| Managerial (appropriate in organized systems of care such as health facilities, hospitals, or pharmacies) | • Reduce fragmentation of health care delivery<br>• Use systems or tools that encourage recommended practices or make it harder to follow discouraged practices<br>• Provide treatment protocols, improved supervision, or better information for health providers<br>• Introduce new technologies or operational processes to improve quality, access, or cost | • Standard treatment guidelines for providers<br>• Consumers' over-the-counter formulary<br>• Stamps for printing standard dispensing labels<br>• M-Health information and communication technologies<br>• Innovative operational processes<br>• Supply-chain enhancement<br>• Innovative medical products and equipment<br>• Fee schedules and exemption policies displayed prominently in clinic areas and other public settings |
| Economic | • Mobilize funds and give purchasing power to consumers and users<br>• Provide financial incentives and disincentives to guide behaviors<br>• Target caregivers through out-of-pocket payments for different types of treatment or different medicines<br>• Target health providers through profit from prescribing decisions or rewarding appropriate performance<br>• Increase resources or subsidies for different products or practices | • Pay for performance incentives for health facilities or individual health providers<br>• Community-based insurance programs<br>• Sponsored insurance enrollment for poor families<br>• Co-payment exemptions for children<br>• Subsidies for key pediatric medicines, such as ACTs for malaria<br>• Higher mark-ups for generic medicines<br>• Private, convenient systems at each health facility for obtaining fee exemptions for the poor |

| | | |
|---|---|---|
| Regulatory | • Include national or institutional policies that restrict the behavior of health providers or consumers, or limit activities in medicine outlets. Success of regulation depends on enforcement, which is weak in many systems. | • Removing unsafe products from the market<br>• Mandatory continuing education for health care providers<br>• Pharmacy and drug shop licensing and inspections<br>• Enforcement of prescription-only regulations<br>• Banning or limiting medicines dispensed in certain settings<br>• Fee exemptions for essential services or for the poor |

Resource: http://healthmarketinnovations.org/approach-type-definitions

## Table 3-2. Examples of Specific Targets for Interventions Focusing on Caregivers

| |
|---|
| **To improve illness recognition and decisions about seeking care** |
| • Recognize signs, symptoms, and danger signs of target illnesses<br>• Learn when and where to seek care<br>• Learn recommended treatments and medicines for target problems<br>• Learn what essential medicines to keep at home<br>• Understand dangers of specific types of inappropriate medicines (e.g., antibiotics, antidiarrheals)<br>• Understand dangers of injections |
| **To improve home illness management skills** |
| • Learn how to determine elevated temperature and difficulty breathing<br>• Learn how to choose the best medicine to treat specific symptoms<br>• Learn how to read medicine labels<br>• Learn how to give medicines, including correct timing and dose<br>• Learn to not skip a dose<br>• Learn to give the entire course of medicine for the recommended time<br>• Learn how to prepare oral rehydration salt solution<br>• Recognize improvement in symptoms; also recognize danger signs and take appropriate actions |
| **To improve communication with health providers** |
| • Learn what to tell when describing the history of an illness<br>• Understand what should happen in a physical exam<br>• Learn to ask about diagnosis<br>• Learn to ask about all aspects of the illness and possible danger signs<br>• Learn to ask how to take medicines<br>• Learn to request low-priced medicines |
| **To improve ability to use the care system effectively** |
| • Know how to compare medicine prices to get value for money<br>• Understand generic medicines<br>• Become aware of misleading promotion about key medicines<br>• Learn how to choose over-the-counter medicines |
| **To improve prevention** |
| • Understand the schedule for recommended immunizations<br>• Learn essential aspects of prenatal care<br>• Learn how to prevent diarrhea and malaria<br>• Learn about nutrition, food, and infections |

**Table 3-3. Possible Targets and Approaches for Caregiver Education**

| Intervention setting | Target audience | Possible approaches | Considerations |
|---|---|---|---|
| Health facilities | Mothers and other caregivers who come to health facilities for illness care for their children or themselves, and for services, such as immunization, nutrition assistance, and prenatal care | • Interactive sessions with individuals or small groups before or after clinical encounters<br>• Audio or video sessions in waiting areas followed by interactive discussions<br>• Distributing persuasive materials in waiting areas with an opportunity to discuss contents, such as guides for preparing ORS, dosing cards for antimalarial medicines, charts of child health danger signs and symptoms, and over-the-counter formularies for selecting locally available medicines to manage common symptoms of childhood illnesses | • Interactive discussions are the best way to communicate with caregivers.<br>• If patient volumes are high, clinical encounters may not be the best time for these interactions.<br>• Incorporating persuasive education into routine activities may involve changing staff roles.<br>• It may be effective to train specific nurses or paramedics to interact with patients during the waiting periods that accompany many clinic visits.<br>• A simple system to collect experiences from mothers and discuss them with staff can be a powerful tool in improving facility practices. |
| Community health care providers | Providers who frequently treat sick children or who have regular contact with their mothers, such as private physicians, paramedics, community health workers, midwives, traditional healers, or counter attendants in retail drug outlets | • Persuasive educational sessions on managing medicines for childhood illnesses to assure that community providers follow recommended practices in diagnosing or treating sick children<br>• Communication skills training for community providers to enable them to deliver key behavioral messages to caregivers more effectively | • Using community health workers as intermediaries can improve their ability to deliver targeted behavioral messages to caregivers.<br>• The choice of which providers to involve depends on the local health system, patterns of care seeking, and the skills and capabilities of different health providers.<br>• The best individuals to involve will be those in frequent contact with sick children or their mothers. |

| Intervention setting | Target audience | Possible approaches | Considerations |
|---|---|---|---|
| Schools and day care centers | Children under five, siblings, relatives, parents, other caregivers, teachers, and child care workers | • Staff clinics at schools or day care centers with local community health workers to treat common childhood illnesses<br>• Train teachers or child care workers and provide them with materials to communicate key messages to parents<br>• Provide educational talks at immunization days or parent-teacher meetings.<br>• Distribute materials at schools or child care centers on identifying, managing, or preventing childhood illnesses<br>• Distribute educational materials on illness management at day care centers when caregivers come to pick up sick children<br>• Provide "child-to-child" or "child-to-family" teaching modules on recognizing, treating, and preventing childhood illnesses | • The best approach in a given setting will depend on the community systems and human resources available.<br>• In general, any community member who routinely interacts with caregivers can be an intermediary for delivering a persuasive intervention. |
| Community settings that involve children | **Formal settings:** churches, mosques, community or political meetings<br>**Informal groups:** business associations, farmers' cooperatives, market days, youth groups, barber shops, beauty shops, internet cafes, supermarkets, public transport | • "Child-to-family" or "child-to-child" educational activities<br>• One-time activities, e.g., child health fairs<br>• Health education groups that meet regularly<br>• Targeted child health messages delivered at baptisms or other relevant interactions with caregivers<br>• Materials that reinforce messages delivered in other settings, including posters, brochures, charts, and pictorial guides on childhood illnesses | • Any community setting where children or caregivers are present can be an opportunity for persuasive education. |

| Intervention setting | Target audience | Possible approaches | Considerations |
|---|---|---|---|
| Women's associations or mothers' groups | Women, mothers, sisters, relatives, female caregivers | • Small interactive group discussions with health care providers about child health issues aimed at reducing misunderstandings between health providers and caregivers<br>• Indicators to monitor quality of visits by mothers to local health care providers<br>• Self-learning discussions about package materials and labels of popular over-the-counter medicines to treat children, which many people do not know how to read | • These groups meet regularly and child health is one of their central concerns.<br>• Motivated and respected women who are leaders in these groups can be recruited for a broader role.<br>• A system to collect experiences from mothers and discuss them with facility staff can be a powerful tool in improving facility practices.<br>• Consider mothers' self-learning on how to identify which medicines are in over-the-counter products, which symptoms these medicines treat, and how to choose the best value in buying medicines. |
| Mass media | All members of the community | • Call-in help lines to request advice or listen to recorded messages about child health<br>• Reminder cell phone text messages to specific caregivers.<br>• Songs and plays with key intervention messages taught to local school children or mothers' groups performed in health facilities, markets, community meetings<br>• Audio and video presentations with key messages broadcast at locations where caregivers and parents congregate<br>• Radio, television, and social media messages about key health practices and advertisements for recommended practices | • Maintaining and staffing a call-in line or m-Health service can be expensive.<br>• Local expertise in communication is needed to develop effective mass media approaches.<br>• Continuing use of video and audio materials is relatively low cost, but audiences can quickly become desensitized to messages. |

## Table 3-4. Economic Approaches Targeting Caregivers to Improve Access to Medicines and Preventive Commodities

| Economic intervention | Possible approaches | Examples |
|---|---|---|
| Reduce the price of clinic visits, services, and products | • Remove or reduce user fees in public facilities for services for children under 5<br>• Establish user fee or copayment exemptions for poor patients or for essential pediatric services<br>• Implement programs to advise patients about the cost and relative importance of specific health services and medicines to help them make cost-effective choices<br>• Establish community essential medicines schemes where private pharmacies do not exist or where they stock only expensive brand name products | • Fee schedules displayed prominently in the clinic area<br>• Private, easy-to-use systems for obtaining fee exemptions for the poor<br>• Individual service fees instead of bundled fees (e.g., charging for individual medicines and lab tests rather than a visit fee) to discourage overuse<br>• Service vouchers given to poor families to cover free or subsidized care by private health providers or medicines purchased at private pharmacies<br>• Supply of full course-of-therapy packaging for antibiotic or antimalarial treatment<br>• On-site medication counselor in health facilities or pharmacies<br>• Telephone hotline or text messaging to inform consumers about medicine quality or price |
| Increase access to risk protection or financing | • Expand national social insurance programs to include the poor and medically needy<br>• Use government budget or donor contributions to establish community-based health insurance programs<br>• Support the establishment of microfinance programs to make small consumer loans when needed for medical care | • Premium payments by local governments to enroll poor families in insurance schemes<br>• Expansion of outpatient benefit in insurance schemes to cover essential child health services (visits, lab tests, medicines)<br>• Community-based health insurance integrated into caregiver networks (e.g., women's groups) to increase awareness and access to resources<br>• Microfinance programs based at government health facilities, private clinics, or community organizations serving large numbers of caregivers (e.g., schools, churches) to facilitate access to small loans |

## Table 3-5. Examples of Specific Targets for Interventions Aimed at Health Care Providers

| To improve illness recognition and diagnosis |
|---|
| • Clinical signs and symptoms of common childhood illnesses<br>• Essential diagnostic steps<br>• Guidelines to assess severity of symptoms, danger signs, and need for referral<br>• What to do when lab exams are needed |
| **To improve selection of appropriate treatment or preventive commodity** |
| • Standard treatments and key preventive practices for common illnesses<br>• Understanding medicine ingredients<br>• How to administer common medicines<br>• Age-related dosing information<br>• Dangers of inappropriate medicines<br>• Appropriate use of antibiotics<br>• Dangers of injections |
| **To improve skills in communicating with caregivers** |
| • Methods for improving communication with caregivers<br>• Questions to ask about illness history and previous use of medicines<br>• Questions to ask about preventive care<br>• Explaining symptoms to caregivers<br>• What to do when danger signs occur<br>• Helping patients and customers afford medicines<br>• Key messages about immunization, prenatal care, and prevention<br>• Persuasive materials targeting patients and customers |
| **To improve dispensing of medicines** |
| • How to fill out dispensing labels<br>• Using low-cost dispensing materials<br>• Encouraging full courses of therapy<br>• Verbal instructions and advice to give when dispensing<br>• Using pictures to explain dosing |
| **To improve stock management** |
| • Which essential medicines or preventive commodities to stock<br>• How to purchase medicines or preventive commodities efficiently<br>• Good medicines storage practices<br>• Expanded availability and use of generics |

## Table 3-6. Key Principles for Designing Effective Health Provider Education Programs

| |
|---|
| **Organize sessions in small groups or with individual providers.** |
| • Small groups or individual sessions allow persuasive messages to be tailored based on prior practices, current levels of understanding, or readiness for change. |
| **Address the reasons for problem behavior.** |
| • Use focus groups and interviews to explore the reasons for problem behaviors in the target group of health care providers. |
| **Concentrate on behavioral recommendations rather than factual information.** |
| • Communicate simple recommendations about what to do or not to do, and why.<br>• Messages about behavior can get lost if there is too much unnecessary information. |
| **Communicate only a small number of behavioral messages at a time.** |
| • Limit the number of topics covered in a single persuasive session.<br>• Multiple sessions covering fewer issues in each session will achieve larger effects. |
| **Schedule multiple contacts with the target group over time.** |
| • Reinforcement is key to sustaining behavior change.<br>• Time between sessions allows someone to try new behaviors and gives an opportunity to address questions that arise. |
| **Make the process as interactive as possible.** |
| • Interaction with opportunity for questioning and discussion provides a greater feeling of involvement.<br>• Interactive education allows information to be tailored to a particular group or individual. |
| **Provide a chance to practice new skills during the session.** |
| • Practicing new skills such as better patient communication or guideline-based prescribing consolidates learning and stimulates questions about implementing behaviors in practice. |
| **Use printed materials to highlight the main persuasive messages.** |
| • Although ineffective by themselves in changing behavior, print materials allow repetition and reinforcement of the key messages emphasized in interactive sessions. |
| **Combine education with other approaches that support the recommended practices.** |
| • Parallel interventions such as patient education, improved managerial systems, and changes in financial incentives can support changes in behavior. |

Based on material from the WHO-INRUD Promoting Rational Drug Use Course, Session 10: Principles of Persuasive Face-to-Face Education

## Table 3-7. Economic Interventions to Improve the Treatment of Child Illness by Health Providers

| Economic intervention | Possible approaches | Examples |
|---|---|---|
| Changes in economic incentives for prescribers | In the public sector:<br>• Mandate that health institutions within a fixed budget to encourage efficient use of resources.<br><br>In the public and private sectors:<br>• Reduce economic motivation to recommend medicines by implementing performance-based incentives.<br>• Implement alternative forms of reimbursement to discourage overuse or encourage quality. | • Implementation and enforcement of regulations that disallow dispensing of medicines for profit by prescribers<br>• Limits on the allowable mark-up of medicines dispensed in health facilities<br>• Budgets for health facilities linked to performance bonuses or penalties<br>• Capitation reimbursement arrangements that link families to specific primary care providers<br>• Case-based payment for common child illnesses such as malaria or pneumonia<br>• Pay-for-performance (P4P) programs that link financial incentives to achieving quality benchmarks |
| Changes in economic incentives in pharmacies and retail settings | In the private sector:<br>• Remove the economic motivation for dispensers to dispense prescription-only medicines without prescription.<br>• Pay for cognitive services to customers in pharmacy retail settings.<br><br>In the public and private sectors:<br>• Change medicine pricing structure in pharmacies or retail outlets.<br>• Provide government subsidies for specific recommended services and products to encourage their manufacture, distribution, and use. | • Enforce regulations that disallow dispensing of prescription-only medicines without prescription<br>• Use different co-payments within a therapeutic class so that recommended medicines cost less than non-recommended alternatives<br>• Fixed dispensing fee rather than percentage mark-up to encourage dispensing of low-cost generic medicines<br>• Greater retail percentage mark-up for essential generic medicines than for brand medicines<br>• Higher mark-ups for dispensing full course-of-therapy antibiotic or antimalarial treatment<br>• Subsidies for essential generic medicines or for specific pediatric products such as ORS, zinc, or pediatric formulations of antibiotics or antimalarials<br>• Reimburse counseling, education, or adherence monitoring by pharmacists<br>• Payments for appropriate referrals to public facilities for children who need medical treatment |

## Table 3-8. Managerial Interventions Targeting Health Care Providers

| Managerial interventions | Possible approaches | Intervention examples |
|---|---|---|
| Guide clinical behavior using standard protocols or processes | • Develop standard treatment guidelines for common pediatric conditions, in partnership with professional associations, insurance organizations, or individual health institutions*<br>• Develop an over-the-counter formulary for common childhood illnesses<br>• Provide decision aids and tools to be used during the clinical process to guide practice | • Printed decision aids that encourage health workers to follow a recommended process, such as standard treatment protocols on wall charts or desk charts<br>• Preprinted prescription or lab order forms with check boxes to indicate recommended choices for common illnesses<br>• "Prescription" forms for children with viral infections with recommendations for symptom management<br>• Standard dispensing labels with blanks for writing patient name, medicine name, and dosing information<br>• Guidelines for retail pharmacies, emphasizing adequate questioning to understand the history, nature, and severity of symptoms and prior treatment |
| Inform health workers about their practices | • Improve data quality in routine recording systems to be able to measure quality of care<br>• Measure performance by using explicit indicators and report data to health care providers about their performance | • Audit of data completeness and accuracy in medical record and pharmacy systems<br>• Simple indicators based on data from manual or electronic medical record systems to monitor quality and cost of prescribing or dispensing<br>• Routine self-monitoring systems in which staff members extract and analyze data from their own medical or pharmacy records<br>• Monthly or quarterly discussions about performance indicators at staff meetings for all health providers working in a health facility or geographic area |
| Establish ongoing capacity for improving quality of care | • Establish and strengthen routine quality improvement programs in clinics<br>• Implement enhanced supervisory systems to monitor performance | • Rapid-cycle quality improvement or monitoring-training-planning approaches to improve key processes of care<br>• Train managers and supervisors how to coach performance improvement, facilitate group process, and give clinical guidance<br>• Standard supervisory checklist to assess and track quality of care |

*see WHO standard treatment guidelines at: http://whqlibdoc.who.int/publications/2012/9789241502825_eng.pdf

## Table 3-9. Regulations Targeting Professional Standards to Improve the Quality of Medical and Pharmacy Practice

| Regulatory interventions | Possible approaches | Examples |
|---|---|---|
| Health professional standards | Establish standards for health professionals in all settings in partnership with medical and pharmaceutical societies | • Regulations to ensure adequate pre-qualification training in management of child health problems<br>• Requirements for continuous education of health professionals at all levels to maintain knowledge and skills<br>• Accreditation standards and regular evaluation of providers to ensure they meet these standards<br>• Minimum training requirements for counter attendants working in retail medicine outlets who are often the first point of contact for customers seeking care for a sick child |
| Pharmacy practice standards | Establish, monitor, and enforce regulations setting standards in retail pharmacy settings | • Enforcement of regulations concerning the sale of prescription medicines, including the sale of prescription-only medicines and restricted medication categories<br>• Requirements for retail medicine outlets to publicly display pharmacy licenses and inspection certificates<br>• Enforcement of regulations that ban injections or antibiotic dispensing in unqualified retail outlets<br>• Requirements for retail pharmacies and medicine shops to display price information for customers<br>• Requirements to stock lower-cost generic equivalents of popular brand medicines<br>• Regulations allowing generic substitution by qualified pharmacy personnel<br>• Minimum standards for packaging and labeling of dispensed medicines |

## Table 3-10. Examples of Health System Strengthening Approaches to Support Better Management of Medicines for Childhood Illnesses

| |
|---|
| **Availability of care for children** |
| • Adopt regulations and establish a cadre of trained community health workers in rural areas<br>• Establish programs to train traditional healers in managing childhood illnesses and appropriate referral to obtain prescription medicines<br>• Develop policies to authorize trained community health workers to administer antibiotics for childhood pneumonia |
| **Medicines supply and availability** |
| • Register medicines that are needed for treating children<br>• Adopt standard operating procedures for selecting, procuring, and distributing medicines<br>• Use essential medicines lists linked to standard treatment guidelines for selection and procurement in the public sector<br>• Transparent and competitive tender process, using pre-qualified suppliers<br>• Improve the efficiency and reliability of medicines distribution and stock systems<br>• Create systems for more efficient transportation, storage, and delivery of medicines<br>• Implement routine monitoring and supervision of supply system practices<br>• Create systems for assessing and quantifying medicine supply needs<br>• Implement checklists for identifying which essential medicines to stock in private outlets<br>• Create essential medicine franchises and other innovative supply arrangements<br>• Establish pooled procurement systems involving multiple facilities or administrative areas to obtain volume discounts<br>• Regularly audit drug procurement, distribution, and stock keeping; develop electronic information systems linking distributors with facilities and drug outlets<br>• Reduce taxes, tariffs, and mark-ups on pediatric medicines<br>• Develop privatized medicine delivery or license private pharmacies in public sector health facilities |
| **Selection of appropriate treatment** |
| • Endorse ethical standards in medicine promotion<br>• Withdraw unsafe medicines from market<br>• Remove inappropriate medicines from supply systems<br>• Endorse course of therapy packaging<br>• Supply pediatric formulations for recommended medicines<br>• Monitor quality of prescriptions |
| **Follow-up treatment outcomes** |
| • Establish and maintain an effective post-marketing surveillance system<br>• Monitor and provide feedback on referrals to public health care facilities from licensed drug outlets or traditional healers |

## Table 3-11. Managerial and Regulatory Strategies to Improve Efficiency and Quality in Public and Private Sector Health Care and Pharmaceutical Supply Systems

| Systems intervention | Possible approaches | Examples |
|---|---|---|
| Improve public sector medicines supply system efficiency | • Adopt standard operating procedures for selection and procurement and distribution of medicines<br>• Improve the efficiency and reliability of medicines distribution and stock systems<br>• Implement routine monitoring and supervision of supply system practices | • Use of essential medicines lists linked to standard treatment guidelines for selection and procurement<br>• Transparent and competitive tender process, using pre-qualified suppliers<br>• Pooled procurement involving multiple facilities or administrative areas to obtain volume discounts<br>• Needs-based quantification of medicines requirements<br>• Prime vendor contracting, privatized medicine delivery, or licensed private pharmacies in public sector health facilities<br>• Regular audits of drug procurement, distribution, and stock keeping |

## Table 3-12. Examples of Supportive Policies Targeting the Pharmaceutical Industry

| Regulatory intervention | Possible approaches | Examples |
|---|---|---|
| Set standards for pharmaceutical industry performance | • Limit excessive promotional activities aimed at health care providers<br>• Improve unbiased information to consumers about medicines | • Establish and enforce standards for pharmaceutical advertising and sales visits by company representatives<br>• Ban inappropriate financial incentives to reward prescribing or sales of a particular medicine<br>• Mandate consumer-oriented information on medicines packages, including simple and easy-to-read patient instructions and pictorial labeling |
| Ensure the quality and safety of essential medicines | • Maintain an active quality assurance program to monitor the quality and safety of generic medicines in the marketplace<br>• Encourage manufacture and distribution of products that meet essential child health needs | • Ban medicines that are unsafe for children (e.g., pediatric antidiarrheals or inappropriate combination products to treat respiratory infections in children)<br>• Provide incentives for manufacturing key pediatric formulations or distributing products using course of therapy packaging<br>• Implement expedited registration and market approval, financial incentives, or guaranteed volume contracts for manufacturers of high-quality essential medicines |
| Establish policies to lower the prices of essential pediatric medicines | • Implement policies that encourage lower prices for essential pediatric medicines<br>• Implement pro-generics policies | • Reduce import taxes and tariffs on essential medicines<br>• Control allowable wholesale and retail mark-ups for specific pediatric medicines<br>• Allow generic substitution in public and private pharmacies |

# Chapter 3 Reference List


1. Forsetlund, L., Bjørndal, A., Rashidian, A., et al. Continuing Education Meetings and Workshops: Effects on Professional Practice and Health Care Outcomes. *Cochrane Database Syst. Rev.* 2009;(2):CD003030. Available from http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD003030.pub2/abstract

2. Farmer, A. P., Légaré, F., Turcot, L., et al. Printed Educational Materials: Effects on Professional Practice and Health Care Outcomes. *Cochrane Database Syst. Rev.* 2008;(3):CD004398. Available from: http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD004398.pub2/abstract

3. O'Brien, M. A., Rogers, S., Jamtvedt, G., et al. Educational Outreach Visits: Effects on Professional Practice and Health Care Outcomes. *Cochrane Database Syst. Rev.* 2007;(4):CD000409. Available from: http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD000409.pub2/otherversions

4. Flodgren, G., Parmelli, E., Doumit, G., et al. Local Opinion Leaders: Effects on Professional Practice and Health Care Outcomes. *Cochrane Database Syst. Rev.* 2011;(8):CD000125. Available from: http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD000125.pub4/abstract

5. Ivers, N., Jamtvedt, G., Flottorp, S., et al. Audit and Feedback: Effects on Professional Practice and Healthcare Outcomes. *Cochrane Database Syst. Rev.* 2012;6:CD000259. Available from: http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD000259.pub3/otherversions

6. Arnold, S. R., Straus, S. E. Interventions to Improve Antibiotic Prescribing Practices in Ambulatory Care. *Cochrane Database Syst. Rev.* 2005;(4):CD003539. Available from: http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD003539.pub2/otherversions

7. Baker, R., Camosso-Stefinovic, J., Gillies, C., et al. Tailored Interventions to Overcome Identified Barriers to Change: Effects on Professional Practice and Health Care Outcomes. *Cochrane Database Syst. Rev.* 2010;(3):CD005470. Available from: http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD005470.pub2/otherversions

8. Grilli, R., Ramsay, C., Minozzi, S. Mass Media Interventions: Effects on Health Services Utilisation. *Cochrane Database Syst. Rev.* 2002;(1):CD000389. Available from: http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD000389/abstract

9. Aaserud, M., Dahlgren, A. T., Kösters, J. P., Oxman, A. D., Ramsay, C., Sturm, H. Pharmaceutical Policies: Effects of Reference Pricing, Other Pricing, and Purchasing Policies. *Cochrane Database Syst. Rev.* 2006;(2):CD005979. Available from : http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD005979/abstract

10. Austvoll-Dahlgren, A., Aaserud, M., Vist, G., et al. Pharmaceutical Policies: Effects of Cap and Co-Payment on Rational Drug Use. *Cochrane Database Syst. Rev.* 2008;(1):CD007017. Available from: http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD007017/abstract

11. Lexchin, J., Grootendorst, P. Effects of Prescription Drug User Fees on Drug and Health Services Use and on Health Status in Vulnerable Populations: A Systematic Review of the Evidence. *Int. J. Health Serv.* 2004;34(1):101–22. http://www.ncbi.nlm.nih.gov/pubmed/15088676

12. Rx for Change | CADTH [Internet]. [cited 2013 Feb 11]; available from: http://www.cadth.ca/en/resources/rx-for-change

13. International Conferences on Improving Use of Medicines (ICIUM) [Internet]. 1997; available from: http://archives.who.int/icium/icium1997/icium1997.html

14. WHO. Medicines Use in Primary Care in Developing and Transitional Countries [Internet]. 2009. Available from: http://apps.who.int/medicinedocs/documents/s16073e/s16073e.pdf

15. Bryce, J., Gilroy, K., Jones, G., Hazel, E., Black, R. E., Victora, C. G. The Accelerated Child Survival and Development Programme in West Africa: A Retrospective Evaluation. *Lancet* 2010;375(9714):572–82. Available from: http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(09)62060-2/abstract

16. Victora, C. G., Black, R. E., Bryce, J. Evaluating Child Survival Programmes. *Bull. World Health Organ.* 2009;87(2):83. Available from: http://www.scielosp.org/pdf/bwho/v87n2/v87n2a03.pdf

17. Le Grand, A., Hogerzeil, H. V., Haaijer-Ruskamp, F. M. Intervention Research in Rational Use of Drugs: A Review. Health Policy Plan. 1999;14(2):89–102. Available from: http://heapol.oxfordjournals.org/content/14/2/89.long

18. Laing, R., Hogerzeil, H., Ross-Degnan, D. Ten Recommendations to Improve Use of Medicines in Developing Countries. Health Policy Plan. 2001;16(1):13–20. Available from: http://heapol.oxfordjournals.org/content/16/1/13.full.pdf+html

19. WHO. Promoting Rational Use of Medicines: Core Components [Internet]. 2002. Available from: http://apps.who.int/medicinedocs/pdf/h3011e/h3011e.pdf

20. Proceedings of the 2011 International Conference on Improving Use of Medicines - ICIUM2011 [Internet]. ICIUM2011. 2011; available from: http://www.inrud.org/ICIUM/ICIUM-2011.cfm

21. Hardon, A., Hodgkin, C., Fresle, D. How to Investigate the Use of Medicines by Consumers [Internet]. 2004; available from: http://whqlibdoc.who.int/hq/2004/WHO_EDM_PAR_2004.2.pdf

22. WHO. Recommendations for Management of Common Childhood Conditions [Internet]. 2012. Available from: http://whqlibdoc.who.int/publications/2012/9789241502825_eng.pdf

23. Parry, Gareth J., Andrew Carson-Stevens, Donna F. Luff, Marianne E. McPherson, and Donald A. Goldmann. 2013. "Recommendations for Evaluation of Health Care Improvement Initiatives." *Academic Pediatrics* 13 (6 Suppl): S23–30. doi:10.1016/j.acap.2013.04.007. Available from: http://www.ncbi.nlm.nih.gov/pubmed/24268081

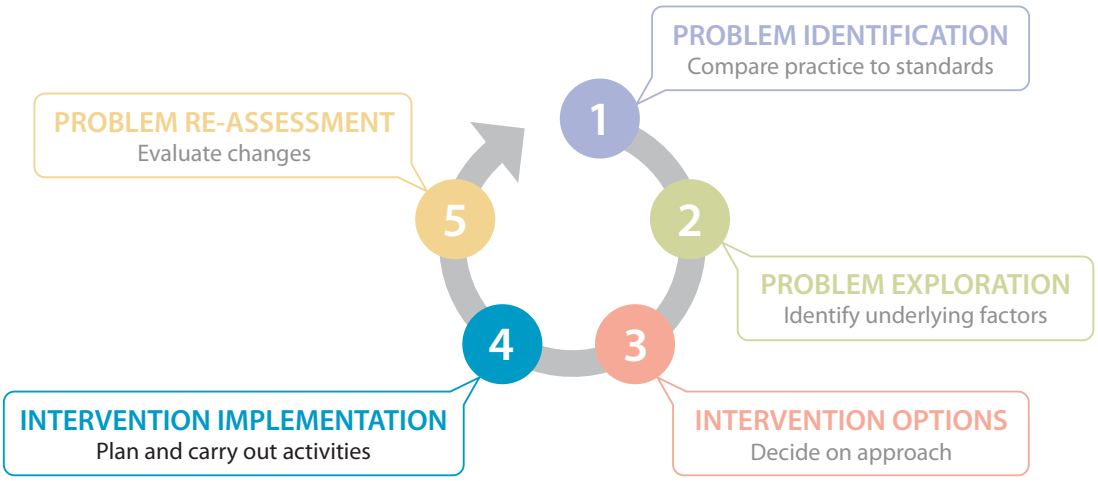
24. Results of a Study on Sustainability of Improvements in Maternal Child Care and Institutionalization of Continuous Quality Improvement in 30 Ministry of Health facilities in 10 SILAIS in Nicaragua | USAID ASSIST Project [Internet]. [cited 2015 Feb 13]; Available from: https://www.usaidassist.org/original-research/results-study-sustainability-improvements-maternal-child-care-and

25. Ombaka, E. Current Status of Medicines Procurement. *American Journal of Health-System Pharmacy* 2009;66(5_Supplement_3):s20–s28. Available from: http://www.ajhp.org/content/66/5_Supplement_3/s20.full.pdf+html

26. Strengthening Pharmaceutical Systems (SPS). 2009. Pharmaceutical Management Interventions that Improve Country Health Systems: The Strengthening Pharmaceutical Systems Program.Arlington, VA: Management Sciences for HealthAvailable from: http://pdf.usaid.gov/pdf_docs/PNADU235.pdf

27. JSI. Improving Supply Chains for Community Case Management of Pneumonia and Other Common Diseases of Childhood (SC4CCM) [Internet]. 2011. Available from: http://www.jsi.com/JSIInternet/IntlHealth/project/display.cfm?ctid=na&cid=na&tid=40&id=4782

# Chapter 4. Implement Intervention




## Introduction

Interventions are more successful when they involve multiple components that are tailored to fit a particular situation and that address barriers to change among health providers, caregivers, and health systems. The behavior changes recommended to health providers should be compatible with and reinforce the changes recommended for caregivers. In addition, the health system should be prepared to support these recommended behaviors.

Multifaceted interventions target a common problem through several channels while focusing on coordinated themes and messages. Multifaceted interventions are usually much more complex to implement than interventions that involve only a single component. Because of this complexity, implementation needs to be carefully planned, coordinated among implementing partners, and continually adjusted to maximize effectiveness. Data systems will be needed to monitor the implementation process to adjust activities to improve the efficiency and effectiveness of the intervention. This section describes some key issues for the working group to consider in preparing for implementation, developing an implementation plan, and designing a monitoring system.

## Preparing for Implementation

### *Principles for Successful Implementation*

Designing and implementing a multifaceted intervention will benefit from creative thinking by the working group. Table 4-1 lists some important principles to enhance the implementation process and maximize impact. In general, the most successful interventions[1] will be those that—

- Target several related aspects of a problem, including caregiver and health provider behaviors as well as organization of the health system
- Use coordinated approaches, including a combination of educational, managerial, economic, and regulatory strategies
- Use multiple channels of communication to reach different members of the target group in different ways
- Engage multiple groups of stakeholders, either in endorsing the intervention or in participating actively in its implementation
- Regularly monitor implementation effectiveness using indicators that can be easily and efficiently collected
- Adapt implementation according to monitoring results to make the implementation process more efficient and maximize outcomes

To justify the investment of time and resources, an intervention should be both feasible and sustainable. To reduce implementation costs and increase impacts, it is important to coordinate efforts with existing

programs and take advantage of complementary health system and community activities. Interventions which are too complex, too costly, or that face strong individual or institutional barriers are likely to be ineffective. Interventions that align with financial, professional, or personal incentives are more likely to be sustainable.

Carefully exploring the causes of problems and barriers to change (Chapter 2) will help the working group to adapt the planned intervention to the local setting, select the most effective intervention components, and combine them in creative ways. Evidence about how other interventions have succeeded in the local setting may suggest how to tailor the new intervention to make it work. Government reports, published research, or the experience of donors or community organizations may also provide useful examples.

### *Designing the Intervention*

The problem assessment (Chapter 1) and in-depth exploratory study (Chapter 2) have provided the working group with detailed information about the nature of existing barriers in access to care and problems in effective use of essential medicines to treat child illness. Reviewing the variety of intervention approaches that have been tried locally and in other settings (Chapter 3) has led to a discussion about possible intervention components that might be helpful in addressing these barriers or problems in care. After considering the examples of multifaceted interventions in other settings, the working group now needs to design its intervention approach.

There are no simple rules for selecting and combining intervention components. Table 4-2 provides a detailed list of key implementation questions that the working group could consider during the planning process. Effectiveness will be enhanced by selecting intervention components that address as many of these issues as possible. Some useful principles to consider when planning the intervention include:

- Implement as many intervention components as possible within existing resources
- Try to include linked educational, managerial, and economic components in the intervention, and consider whether these need to be accompanied by supportive regulatory changes
- For each group of caregivers and health providers targeted by the intervention, consider how to increase their awareness of problems and enhance their motivation to change
- Review all of the potential barriers to success identified in the exploratory study and try to develop an intervention component that specifically addresses each barrier
- Engage as many stakeholders as possible in the implementation process in order to increase community engagement and buy-in
- Consider how you would know if the intervention is being implemented as planned, and develop approaches to collect monitoring data to track implementation success

### *Case example*

Despite the existence of adequate national policies on the treatment of acute diarrhea in children and despite previous national and district awareness campaigns promoting the use of ORS and zinc to treat acute diarrhea in children, the District CCM Team has identified that treatment continues to be inadequate. Neither ORS nor zinc are routinely available in local public facilities or retail shops, and these treatments are not widely recommended by health care providers at all levels. To address this problem, the CCM Team has decided to implement an intervention that involves several components:

**Managerial**

- Strengthen the supply chain for ORS, zinc, and other pediatric medicines in the public sector (through the development of clear standard operating procedures (SOPs) for the whole supply chain and better coordination with the central medical store) and the private sector (in partnership with pharmaceutical distributors)
- Test a public sector system that uses M-Health information and communication technologies for stock monitoring and ordering (see related example in annex 4-1.9 of Chapter 4)

**Economic**

- Increase pay for performance targets and financial incentives for health care providers associated with recommending ORS and zinc for children with diarrhea (see related example of this approach in annex 4-1.7 of Chapter 4)

- In partnership with the community insurance fund, establish an increased fee for dispensing ORS and zinc in private sector pharmacies, in order to overcome the financial disincentive for dispensing low cost products with little mark-up or profit

**Educational**

- Train supply managers in public facilities on the new SOPs for ordering and stocking ORS and zinc
- Design promotional posters to be displayed in both public and private health care facilities promoting the benefits of the recommended treatment of diarrhea with ORS and zinc to caregivers
- Strengthen clinical, business, and management skills of shop owners and dispensers in private retail outlets (see related example of this approach in annex 4-1.8 of Chapter 4)

### *More Examples of Successful Multifaceted Interventions*

Many multifaceted interventions have been undertaken to improve access to and use of medicines for common childhood illnesses, including ARI, malaria, diarrhea, HIV, and neonatal infections. The following examples of multifaceted interventions are summarized briefly in annexes 4.1.1 to 4.1.9 with references to supporting materials. They may provide useful ideas for planning implementation in your setting.

1. Improving community management of child pneumonia through the Nepal Family Health Program (annex 4-1.1): The project combined persuasive education of community health workers and mothers with supervision to mobilize local community resources and enhance capacity of mothers and community health workers to manage ARI in children. This experience is relevant to countries with a low level of economic development, a challenging physical environment, and poorly developed infrastructure.
2. Using persuasive face-to-face educational training in pharmacies to improve treatment of childhood diarrhea in Kenya and Indonesia (annex 4-1.2): The core of the recommended intervention was brief, persuasive education of pharmacists and counter attendants on the principles of proper diarrhea management, combined with in-shop supportive educational tools aimed at counter attendants and customers. This approach, developed by WHO, was field-tested in Kenya and Indonesia and has been adopted in similar interventions elsewhere. The program encourages the MoH to expand efforts to improve diarrhea mantagement to private sector pharmacies and licensed drug sellers.
3. Engaging patent medicine vendors to improve malaria treatment in Nigeria (annex 4-1.3): This intervention combined training for patent medicine vendors with the introduction of pre-packaged, age-specific formulations of chloroquine and sulfadoxine-pyrimethamine, the recommended treatment for malaria at the time. Treatment recommendations in a similar intervention would need to be adjusted to be consistent with current national guidelines.
4. Engaging private health care providers to improve child health care practices in Uganda (annex 4-1.4): This national strategy used a technique known as "Education, Negotiation, and Persuasion" (ENP) to improve the practices of private health providers in treating child illness. Unlike typical training, ENP uses specific information about current practice as a point of reference for negotiating changes to improve quality of care. A "contract" describes the particular changes to be achieved.
5. Reducing the use of injections and antibiotics in public health centers in Gunungkidul, Indonesia (annex 4-1.5): This innovative intervention developed by a district health team in Indonesia illustrates a useful model for engaging public sector health facility staff in better treatment of child illness. The approach was built on developing simple tools for routine self-assessment of practices as a basis for continuous quality improvement under the supervision of an active district health team.
6. Persuasive training (vendor to vendor) to improve treatment of malaria in retail drug shops in Kenya (annex 4-1.6): This low-cost approach, called Vendor-to-Vendor (V2V) education, involved training and equipping wholesalers and mobile vendors with customized job aids to distribute to small rural and peri-urban retailers. The one-year V2V intervention was followed by a coordinated community intervention entitled Neighbor-to-Neighbor that distributed brochures through a village level cascade and used song contests to pass malaria messages to the local population.
7. Improving malaria treatment with subsidies for ACTs and rapid diagnostic tests in western Kenya (annex 4-1.7): This innovative program evaluated the differential effects of subsidies for artemisinin-based combination therapy (ACT) alone versus subsidies for ACT and rapid diagnostic tests (RDTs) in drug shops on access to care, use of diagnostic tests, and use of ACTs.
8. Developing a System of Accredited Drug Dispensing Outlets in Rural Tanzania (annex 4-1.8): The initial ADDO program was a donor-supported initiative led by the Tanzanian Food and Drug Authority

(TFDA) to train and license small, privately operated retail outlets in rural areas. After evaluating the approach's success, the TFDA has now scaled up the program to national level.

9. Pilot SMS-For-Life Project in Tanzania (annex 4-1.9): This approach uses text messages and electronic mapping technology to provide comprehensive and accurate stock counts of antimalarials from health facilities to district managers to reduce stock-outs, increase availability of essential antimalarials in public health facilities, and reduce the number of deaths from malaria.
10. Health Systems Supports for Community Case Management of Childhood Illness in Malawi (annex 4-1.10): The Malawi CCM program used a six-day training of community-based health workers on management of child illness, dedicated supply of essential medicines, and regular supervisory visits as core components of implementing the national program for Community Case Management of Childhood Illness. A multicomponent evaluation pointed to problems in drug supply and supervision that prevented the aims of the CCM program from being realized.
11. Evaluation of a Universal Coverage Bed Net Distribution Campaign in Four Districts in Sofala Province, Mozambique (annex 4-1.11): This intervention used a novel universal coverage distribution model involving data collection prior to distribution to estimate the number of long-lasting insecticide-treated bed nets (LLINs) needed per household. A comprehensive evaluation showed that the campaign achieved high coverage and was associated with a reduced risk for malaria and anaemia in children under five, but utilization of the bed nets had declined substantially by 14 months after the campaign.

Annex 4-2 contains recommendations for strategies to improve use of medicines for sick children that were developed at the Third International Conference on Improving Use of Medicines (ICIUM2011), including recommendations based on a number of complex interventions to care for sick children discussed at the conference.

Additional resources for developing interventions to improve use of medicines for child health are available in annex 4-3 and in the database of the Health Care Improvement Project.[2]

**Working Group Activity**
The working group should review some of the relevant examples described above. These illustrate the successes and failures of previous interventions in the local setting that have targeted similar problems. This will help the group to consider different implementation options as it prepares to draft its multifaceted implementation plan.

## Developing an Implementation Plan

Multifaceted interventions to improve access to and use of medicines by sick children will target different actors and systems. Some interventions focus on improving the performance of health providers at public health facilities, while others target community-based providers. Some interventions are directed primarily at caregivers and their choices at home or when they interact with health providers. Other interventions seek to establish new community systems or strengthen existing ones. Each situation requires a unique implementation approach.

### *Engaging Partners*

Human resources in the health system and in the community are limited. The working group must identify the human resources needed to implement the planned intervention and develop a strategy to engage them. This usually involves partnerships with a variety of health institutions, private sector organizations, and community groups. Choice of partners will be based in part on how likely they are to participate and on whether they will need financial or logistical support to become involved. The best partners are organizations that already interact regularly with members of the target groups. Influential organizations may not always be involved in health-related activities (e.g., churches, school systems, agricultural cooperatives).

The working group should agree on a strategy for inviting organizations to participate in implementing the planned intervention. Several factors may increase the chances of bringing them on board—

- Involving representatives of key organizations in the working group as early as possible in the planning process
- Providing partners with the program rationale, strategies, and messages in a form tailored to their own mission

- Arranging local, regional, or national linkages that partners would perceive as valuable in advancing their own activities
- Giving potential partners plenty of advance notice so that they can build intervention activities into routine operations or future programs
- Encouraging partners to personalize and adapt intervention activities and materials to fit their situation, giving them a greater sense of ownership
- Asking partners what resources they might contribute in implementing the intervention
- Helping partners to develop systems to monitor implementation, assess progress, or make adjustments to keep the intervention on track
- Providing frequent thanks and other rewards to keep partners motivated

Knowledge for Health (K4Health) has prepared a useful field guide describing how to mobilize communities to improve health at the individual, family, and community level.[3]

### *Mobilizing Financial Resources*

In addition to a sound overall approach, detailed planning, and engaged partners, a successful intervention should be adequately funded. When planning implementation, the working group must ensure that resources can be mobilized for each intervention activity as needed. The working group must consider what levels of financial and human resources are realistic, both during initial implementation and in the long run.

One useful planning tool is a resource inventory, which details the resources needed to carry out and sustain the intervention. For each organization or community group that will be part of intervention implementation, the resource inventory lists—

- Anticipated time and effort from individuals or community organizations who can contribute on a voluntary basis without additional compensation
- Available time and cost for individuals who could work on the intervention if they are compensated
- Specialized equipment or technical resources that need to be borrowed or purchased
- Total amount of additional funds required and their sources

After completing the resource inventory, the working group can match available resources with projected needs to ensure both short-term and long-term viability of the intervention activities. They should carefully consider the costs, benefits, and political implications of resource allocation decisions. Once the group is satisfied that available resources are sufficient, it can finalize a resource mobilization plan that covers—

- What specific resources are required and when they are needed
- Who can commit the resources and how these commitments will be obtained
- Location and control of these resources during the intervention
- Contingency plans if the intervention does not proceed according to schedule or if the resources are not available as committed

### *Involving the Right Community Members*

Interventions at community level cannot achieve long-term success without involving key community organizations and individuals. As part of implementation planning, the working group should also consider the best way to foster community involvement.

**Encourage natural leaders to become involved.** In some communities, natural leaders may not be involved in child health issues. Promising sources for leaders include women's groups, church groups, youth groups, farmers' cooperatives, or local NGOs. Plans to engage potential leaders should build on existing formal and informal structures credible in the community.

**Make the community a partner in the process.** Community groups can help to carry out exploratory studies or design an approach to reach their constituents. During implementation, community members can spread information about the intervention through community networks or volunteer time for specific activities.

**Foster collaboration among organizations.** Different groups do not always share a common vision about which programs are best for their communities. Duplication of effort or conflicting activities by different organizations are not uncommon. Encouraging alliances between community organizations, NGOs, and private sector groups working on child health can increase community awareness and support.

**Use incentives.** Community participation is more likely when there is some tangible benefit to individuals or groups. For long term sustainability, it is not wise to link participation to financial rewards. However, incentives can be used in creative ways to increase motivation or involvement, for example, by making community volunteers eligible for a lottery prize. Non-financial incentives such as listing volunteers in program materials, acknowledging contributions in community meetings, or providing certificates of participation can also increase involvement.

### *Preparing a Detailed Implementation Plan*

Once the components of the intervention have been finalized, the working group must develop a detailed implementation plan that includes all of the tasks involved in engaging community partners, mobilizing resources, reaching out to community members, training staff, and performing day-to-day intervention activities. Implementation plans are critical to managing complex projects effectively. These documents capture details about tasks, responsible parties, and dates so that the working group can track how well the intervention is reaching its milestones during the implementation process.[4] Typically, an implementation plan will list the following information for each implementation task—

- Name of the person responsible for the task
- Estimated (and actual) dates for start and completion of the task
- Whether a task is on schedule, behind schedule, completed, postponed, or canceled
- Whether a task is high, medium, or low priority
- Whether the task is considered a key project milestone

**Working Group Activity**
After discussing partnerships, financial resources, and community involvement, develop a detailed intervention implementation plan. The plan should cover your responsibilities, activities, and resource requirements and those of each partner organization. Involving local community organizations (e.g., village councils, women's organizations, churches, schools, retail associations) in the planning process is a good way to foster greater community ownership and engagement.

## Develop a Monitoring System

Monitoring is used to measure the routine behaviour of health care systems in order to track performance over time and respond in a timely way to observed changes. Monitoring always involves the use of selected indicators collected from routine data. Sometimes monitoring systems will involve the addition of a new data collection method in order measure key aspects of system performance that might not already be covered in existing routine data. An example would be patient satisfaction surveys, which some health care delivery systems have now adopted as a routine monitoring activity.

Figure 4-1 provides a simple illustration of a health system logic model for managing childhood illness. A multifaceted intervention is intended to introduce changes in health system inputs and processes to produce a cascade of changes related to system outputs, health outcomes, and overall impact on child health.

Well-designed and informative monitoring systems seek to measure key aspects of health system performance. Certain health system inputs (human and financial resources, physical infrastructure) processes (medical, pharmacy, and lab services), and outputs (types of health care utilization at different locations of care) can be measured using data that exist in health facilities, district health offices, or pharmaceutical distributors. Many government health IT systems routinely report data on factors like staffing, medicines supply, clinic attendance, health service utilization, or expenditures. Monitoring systems can take advantage of these routine data sources to measure expected and unexpected changes that occur during the implementation process.

| INPUTS | PROCESS | OUTPUTS | OUTCOMES | IMPACT |
|---|---|---|---|---|
| Policy environment<br>Human and financial resources<br>Health system and community infrastructure | Training and education<br>Medicine supply management<br>Organization and delivery of health care and lab services<br>Supervision<br>Communication and advocacy | Health provider knowledge, attitudes, practices<br>Caregiver knowledge, attitudes, practices<br>Children treated by location of care<br>Referrals | Patterns of diagnosis and treatment of child illness<br>Utilization of medicines for child illness<br>Preventive behaviors | Illness outcomes<br>Mortality |

**Figure 4-1. Health system logic model for management of childhood illness**

Additional data will need to be collected by those implementing the intervention itself to monitor some key inputs, processes, and outputs. For example, data on the number and types of health providers or caregivers who receive training, the number of supervisory visits, the number of community meetings, or the amount of printed educational materials distributed can easily be reported by staff members who are implementing these intervention components. Training programs can also incorporate simple processes to measure pre-post knowledge about key intervention messages or questions that arise from participants.

Data on the domains listed under outcomes and impact in Figure 4-1 are usually not available without specialized types of data collection, so they are usually not part of routine monitoring systems. However, interventions that involve community health workers who visit families in their homes could potentially establish simple reporting systems to measure some aspects of community utilization during implementation.

The working group has used indicators to measure the existence and prevalence of problems when assessing problems (Chapter 1, table 1-4). The group has also had the opportunity to use other sources of data that might be suitable for monitoring when exploring problems (Chapter 2). Based on these experiences, the group should identify key performance indicators to monitor the system when implementing the planned intervention.

Many monitoring indicators will come from data sources identified earlier. However, the process of implementing the intervention opens up the opportunity to collect other types of monitoring data. For example, trainers can collect data on health provider or caregiver knowledge before and after an educational session. Or supervisors can use checklists to observe and measure key elements of infrastructure or health provider performance during health care encounters. The challenge will be to select and monitor a set of measures that best address the questions of how effectively the intervention is being implemented and whether the expected changes in behavior are occurring as a result.

## Pilot Testing the Intervention

Past experience is a good predictor of problems that may arise when implementing an intervention. However, many interventions involve new materials or untested activities. Pilot testing is the best way to ensure that intervention activities will be feasible as planned, and to identify areas that need to be strengthened to achieve success. A pilot test also allows approaches and tools to be modified before they are implemented on a wider scale. As part of a pilot, the working group can also test practical systems that capture data to monitor as to whether the intervention is proceeding as planned (Chapter 5).

Pilot testing involves conducting all activities that will be part of the intervention under realistic circumstances in the actual settings where the intervention will take place. The pilot test is done to work out all the details of planning and logistics before actual implementation, such as obtaining necessary

permissions, scheduling, travel and accommodation, site preparation, training, logistics during meetings or events, record keeping, debriefing, and follow-up communications.

The pilot test will also help the working group understand how feasible it will be to implement intervention activities at scale and over time. If different partners play important roles during implementation, communication among partners and coordination of their activities should also be part of the pilot test.

Pilot testing educational materials involves using them with actual members of the target group in the way that will be used for the intervention. This is not the same as pretesting the design of the materials, which usually focuses on layout, formatting, or comprehension. The purpose of the pilot test is to learn whether the materials successfully communicate key behavioral messages when they are used during the intervention. Clearly, persuasive educational materials should be pilot tested before they are mass produced in case the materials need to be changed. Even if materials are adequate, the pilot test may result in changes in the communication process, such as changing the way materials are used by a facilitator, increasing two-way communication, or adjusting group size.

Ideally, communication processes should be tested with several different groups of people in the intended target audience. One way to know if the materials are effective is to quiz participants on key concepts before and after the communication process. In addition, short focus group discussions may help to determine positive and negative impressions of the materials and the communication process. Testing in groups can sometimes lead to greater insights than when materials are tested with individuals.

Lessons learned from the pilot test need to be incorporated into the implementation plan. This involves reviewing data from the pilot test and determining the success of each planned activity. The working group may need to adjust the materials, intervention activities, or the implementation plan to achieve the best possible results.

**Working Group Activity**
Design an implementation monitoring system and develop plans for a pilot test of the intervention materials and approaches. The pilot test should take place in the same settings in which the intervention will eventually be implemented. The pilot test should include systems to monitor the timing and efficiency of implementation of specific components. After the pilot test, Meet again to discuss results and modify the implementation plan as needed to improve coordination and increase the chance of success.

## Final Step Before Implementation Begins

By the end of this chapter, the working group will have developed a detailed plan to implement and monitor the effectiveness of a multifaceted intervention to improve the use of medicines for sick children. In its final activity before implementation begins, the working group should consider how it will evaluate results and share them with stakeholders. The next chapter will lead the group through thinking about these issues.

# Chapter 4 Tables

### Table 4-1. Key Principles to Maximize the Impact of Interventions to Improve Care for Childhood Illnesses

| Principle | Significance |
|---|---|
| **Importance** | Interventions that target high-prevalence problems or those with clear negative outcomes will be of most interest to policymakers, health providers, and community members. |
| **Collaboration** | Organizing a working group to design, implement, and evaluate the intervention is the best strategy to gain the support and commitment of local agencies, organizations, and key community leaders. |
| **Participation** | Engaging community organizations, leaders, professional associations, and members of the target groups in designing and implementing an intervention will increase acceptance and support. |
| **Feasibility** | Interventions that take into account existing community systems, available resources, and constraints will be practical to implement. |
| **Sustainability** | Interventions that are as simple and inexpensive as possible and or that require skills or resources that are readily available will be the easiest to sustain. |
| **Multifaceted** | Interventions that use multiple approaches that target caregivers and health providers, combine persuasive education with system supports, and address incentives and the policy environment will be more effective. |
| **Coordination** | Intervention activities that fit (as much as possible) into existing processes and systems in the community and in health facilities will be the easiest to coordinate. |
| **Evidence- based** | Identifying examples of successful interventions from other countries targeting similar problems or from other local interventions will offer approaches that are most likely to succeed. |
| **Carefully researched** | Careful problem identification and exploration will lead to a more detailed understanding of the problems and barriers to change as well as opportunities to overcome these barriers. |
| **Pilot tested** | Pilot-testing in the actual intervention setting is the best way to ensure that people, materials, and procedures will perform as well as expected and will provide opportunities to revise approaches before scaling up to widespread implementation. |
| **Monitored** | Tracking and evaluating implementations on an ongoing basis will determine whether the intervention achieves its intended objectives. |

## Table 4-2. Questions to Address When Designing Multifaceted Interventions to Improve Care for Sick Children

| Design activity | Questions to address |
|---|---|
| Selecting targets | Which caregivers and health providers will be targeted?<br>• Which specific behaviors will be discouraged?<br>• Which alternative behaviors will be recommended?<br>• What would motivate people in the target group to adopt new behaviors?<br>• Are there specific knowledge deficits to be addressed?<br>• How, when, and by whom will members of target groups be contacted?<br>• How will the objectives of the intervention be explained? |
| Developing educational approaches | • What are the main intervention messages to discourage problem behaviors and encourage recommended behaviors?<br>• What is the best educational format for communicating with the target group (self-learning, one-on-one interactions, small group discussions, educational seminars, community meetings, mass media presentations)?<br>• How can print materials be used to deliver the educational messages?<br>• Who will prepare the printed materials?<br>• How and with whom will the printed materials be pre-tested?<br>• Could peers or opinion leaders be used to facilitate behavior change?<br>• How could health provider-caregiver communication be improved? |
| Implementing educational programs | • Who is the most credible sponsor (e.g., WHO, MOH, university, professional society, community organization, media personality)?<br>• Who will conduct each educational activity and how will they be selected?<br>• How and by whom will the persuasive educators be trained?<br>• Who is responsible for planning and scheduling educational activities?<br>• Where and how frequently will the educational activities be carried out?<br>• Can educational activities be sustained within existing programs? |
| Implementing supportive managerial interventions | • Do prescribing and dispensing practices vary widely among different health workers or facilities?<br>• Do health workers know how their practices compare with their peers?<br>• Is it feasible to collect data on prescribing or dispensing practices and feed comparative data back to health providers?<br>• Could reminder systems or structured order forms be developed to address problems related to forgetfulness or failure to consider alternatives?<br>• Are there physical or infrastructure limitations that prevent change (e.g., large patient volume; insufficient staffing; inadequate medicine supply, diagnostic equipment, or lab capacity; lack of privacy for consultations)?<br>• Are supportive formularies, essential medicine lists, and targeted clinical guidelines already in place and familiar to health workers?<br>• If formularies, medicine lists, or clinical guidelines must be developed, who will develop them and how will they be kept up to date?<br>• Does the system of performance evaluation influence practice?<br>• How could supervision or self-monitoring reinforce and sustain improvements in practice?<br>• What training and printed materials will be needed for prescribers, dispensers, or supervisors? |
| Creating positive economic incentives | • How do financial incentives influence the behavior of caregivers and health providers?<br>• Are most caregivers able to afford recommended treatments?<br>• Could caregiver decisions about where to seek treatment or which treatments to purchase be improved by changing the costs of specific services or medicines?<br>• How could incentives be used to encourage health providers to use formularies and clinical guidelines?<br>• Could financial incentives be used to reward positive changes in practice or to sustain positive changes over time? |

| Design activity | Questions to address |
|---|---|
| Ensuring supportive policies and regulations | • Are there any existing regulations that encourage problem practices?<br>• Would active enforcement of existing regulations improve practice?<br>• Who could enforce regulations and how would they do so?<br>• Which new regulations could be enacted to improve practice?<br>• How would providers and consumers respond to changes in regulations?<br>• Could limiting access to certain high-cost or second-line medicines improve the way they are used?<br>• What would be the impact of removing specific problem medicines from the market?<br>• If access to specific medicines is restricted, which medicines or services are likely to be substituted?<br>• Would utilization shift in response to changes in regulations (e.g., use of traditional providers, black market, bypassing the referral system, etc.)?<br>• Which educational programs are needed to explain regulatory changes to health providers and consumers and to prevent unintended effects?<br>• How could responses to regulatory changes be monitored? |
| Monitoring, evaluation, and dissemination of results | • Who will supervise the implementation of the intervention?<br>• Which data systems need to be developed to monitor implementation and changes in practice?<br>• What are the key indicators to be used for monitoring?<br>• How, when, and by whom will monitoring data be collected?<br>• How will the costs of implementing the intervention be assessed?<br>• When will members of the target groups be informed about results?<br>• How will results of the intervention be disseminated to policymakers? |

# Chapter 4 Reference List

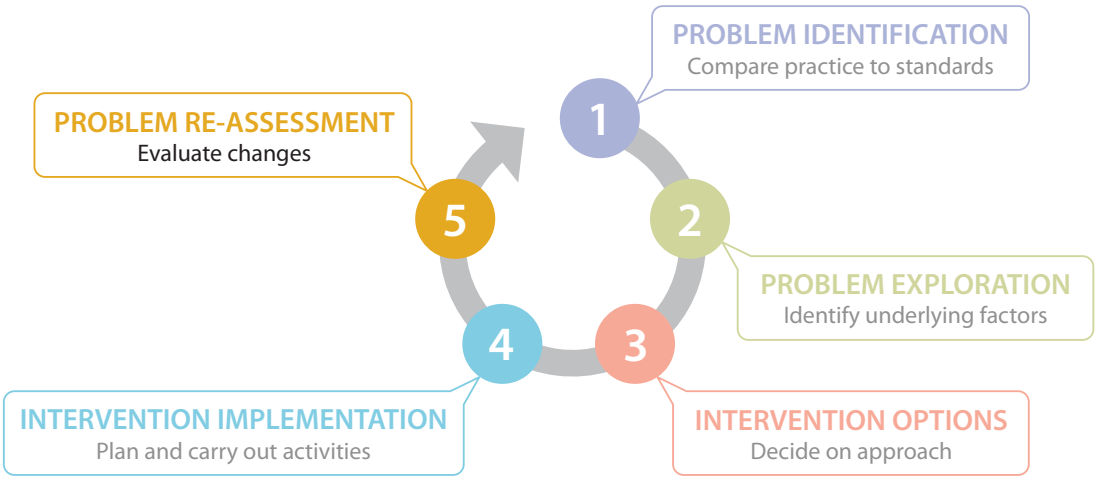
1. Gericke, C. A., Kurowski, C., Ranson, M. K., Mills, A. Intervention Complexity--A Conceptual Framework to Inform Priority-Setting in Health. *Bull. World Health Organ.* 2005;83(4):285–93. Available from: http://www.scielosp.org/pdf/bwho/v83n4/v83n4a12.pdf

2. HCI | USAID. HCI | USAID Health Care Improvement Portal [Internet]. 2012 [cited 2012 Sep 25]; available from: http://www.urc-chs.com/projects/usaid-health-care-improvement-project-hci-global and https://www.usaidassist.org/

3. Howard-Grabman, L., Snetro, G. How to Mobilize Communities for Health and Social Change [Internet]. 2012 [cited 2014 March 24]; available from: https://www.k4health.org/toolkits/pc-bcc/how-mobilize-communities-health-and-social-change

4. SAWSO. Chikankata Child Survival Project - Detailed Implementation Plan (cf. pp. 76-83) [Internet]. 2006; available from: http://pdf.usaid.gov/pdf_docs/PDACH751.pdf

# Chapter 5. Evaluate Intervention




## Introduction

Once the intervention is underway, the focus of the working group needs to shift from monitoring implementation to evaluating effects, and ultimately to disseminating results to participants.

As discussed in Chapter 4, monitoring involves systematic collection and analysis of information to understand how project implementation is progressing and to identify problems that can be corrected. In contrast, evaluation is an activity, usually carried out only once or twice, that assesses whether an intervention has achieved its expected outcomes and impacts. Monitoring and evaluation results can both contribute to strengthening intervention approaches or shifting intervention targets.

There is an extensive literature and many publicly available materials on evaluating health interventions,[1,2,3,4] some of which focus specifically on low- and middle-income countries.[5,6,7,8] This manual does not address in detail the overall strategy or range of methods for evaluating interventions covered in these materials. One important resource to explore in evaluating interventions to improve access to and use of medicines for children is the large number of studies that have been conducted as part of the Multi-Country Evaluation of the Integrated Management of Childhood Illness Strategy.[9,10,11]

The first part of this chapter provides a brief overview of the reasons for evaluating interventions, different types of evaluations, and the tools commonly used to perform an evaluation. The second part touches on some key issues to consider when disseminating the results of an intervention to improve use of medicines for child illness, as well as some of the challenges in scaling successful interventions up to program level.

## Why Evaluate Interventions?

A well-designed evaluation produces practical and relevant information at a particular point in time about the successes and failures of an intervention. This information can help to promote better treatment of child illness by caregivers and health care providers, and better preparation of the health care system by administrators at all levels. Usually, an evaluation takes advantage of data collection systems and indicators that are already in place for monitoring (Chapter 4). However, data collection for an evaluation is usually more elaborate in order to to provide a complete, in-depth assessment of the effectiveness and impacts of an intervention.

### *Identifying Successful Intervention Components*

A thoughtful monitoring system can highlight the strengths and weaknesses of implementation and point to areas for improvement. A comprehensive and well-designed evaluation will identify the components responsible for positive outcomes and focus future dissemination efforts.

Understanding the context of an intervention is a key aspect of interpreting its success or failure.[7] Evaluations should always describe contextual factors (e.g., socioeconomic factors, cultural values, medical knowledge and skills, access to different media and services) and their impact on intervention outcomes.

### *Comparing Intervention Costs and Benefits*

Evaluations should focus not only on measuring positive and negative effects on behavior, but also on the cost of implementing the intervention in relation to its benefits. Assessing how resources are used to implement an intervention is a core component of evaluation and critical to long-term planning. Expanding successful interventions requires difficult decisions about the extent to which resources should be reallocated and priorities changed. When two interventions achieve similar positive outcomes, the more cost-effective one is usually preferred.

### *Motivating Stakeholders*

Sharing the results of an intervention, both locally and globally, can improve knowledge about what works to improve the care of sick children and also guide the work of other teams faced with similar problems. Demonstrating the success of specific intervention approaches through a well-designed evaluation can stimulate greater interest in these approaches among stakeholders and encouraging broader adoption.

## Types of Evaluation

### *Process Evaluation–How was the Intervention Implemented?*

Process evaluation investigates how an intervention has been implemented and how contextual factors may have a positive or negative impact on implementation. The same intervention can succeed or fail according to the context. Process evaluation can help to understand whether interventions are failing because they are poorly conceptualized or because they are being poorly delivered. Frequently, the same indicators used to evaluate the implementation process, especially those derived from routine health or pharmaceutical system data, will be included in routine monitoring systems.

Process evaluation uses quantitative and qualitative methods to answer the following questions—

- Which problems have occurred in planning the intervention? How were they addressed?
- Have issues been uncovered during implementation? How are they being resolved?
- Has the intervention unfolded according to plans? If not, what has changed and why?
- How have these adjustments influenced implementation processes?
- How has the context affected success or failure in achieving the intended outcomes?
- Did non-targeted behaviors change during the intervention? Did they have an effect on the intervention outcomes?
- Could the changes observed have been caused by factors other than the intervention?

### *Outcome Evaluation—Did the Intervention Work as Intended?*

Outcome evaluation is primarily quantitative and focuses on how an intervention impacts selected indicators that measure changes in behaviors known to be beneficial to children.

Outcome evaluations can answer the following questions—

- Did the intervention achieve what it was set to accomplish? Has it been effective?
- What are the outcomes at each implementation level? What do they mean?
- Which behaviors have changed? How have they changed? Have attitudes changed?
- Did the intervention produce unintended effects, either positive or negative?
- How much social and community support did the intervention receive?
- How sustainable do the results appear to be?
- How transferable are the approaches?

### *Multidimensional Evaluation of Processes and Outcomes*

Interventions to improve access to and use of medicines for sick children are usually implemented at several levels of the health care system, and target the behavior of caregivers, health care providers, and health care administrators in different ways. So it is critical to evaluate both the success of the implementation process as well as changes in knowledge, attitudes, behavior, and clinical outcomes to understand and interpret positive and negative effects.

The following questions should be considered when planning multidimensional evaluations—

- What resources are available for the evaluation? How will they be divided among different evaluation activities?
- What are the sources of evaluation data, and who will collect and analyze them?
- Who will want to use the information emerging from the evaluation? What information does each stakeholder need?
- When are the results from the evaluation needed? Are there key decisions in the program planning or budget cycles that could be informed by the results?

## Evaluation Design

To a great extent, the overall design will determine the validity and reliability of the information produced by an evaluation. The strengths and weaknesses of different evaluation designs are described in detail in many resources.[12] The following evaluation designs are commonly used—

- Experimental studies (or randomized controlled trials), which use randomized assignment of individuals, groups, or whole communities to receive the intervention or to serve as controls, provide the strongest evidence of effects. However, they are difficult to implement and often costly and impractical to conduct in public health settings.

- Quasi-experimental studies with repeated measures over time before and after an intervention (known as an interrupted time-series design) can provide convincing evidence about program effects, especially when comparison groups that did not receive the intervention are available or when findings are replicated in different settings.

- Observational studies (for example, one group measured before and after an intervention) and cross-sectional surveys (usually comparing intervention and non-intervention groups) are very commonly used for evaluating interventions. However, results from these types of studies need to be interpreted with a great deal of caution, since any differences observed can easily be due to factors other than the intervention.

Decisions about evaluation design will depend on the intervention, its setting, and the resources available for evaluation. Although randomized controlled trials (RCTs) are the strongest evaluation design, complex community-based RCTs interventions are rare for the reasons stated above. Attention to the design of non-RCT evaluations can increase our ability to know that changes observed are due to the intervention and not to some other factor.

There are many reasons why results of an evaluation that takes place after the intervention ("post-only") may be incorrect. People's memories and perceptions about how they felt and acted prior to an intervention are easily distorted. In addition, even if outcomes in the intervention group are compared to other communities, providers, or health facilities not affected by the intervention, there is no way to know if they would have been different anyway.

Evidence about intervention effects is stronger when data are collected before and after the intervention, and when the evaluation compares a group who received the intervention with a similar group who did not (the control group). In a simple "pre-post" design, especially for changes that affect an entire community or health system, there is no way to know if the observed changes would have occurred anyway without the intervention due to previous trends or external changes. The recommended minimum design to evaluate an intervention is to compare an intervention group with another similar group both before and after the intervention (a "pre-post with comparison group" design).

## Evaluation Methods and Indicators

Interventions to improve access to and use of medicines for sick children frequently target several community and provider groups and a range of interrelated behaviors. Effects can therefore be complex to assess. A comprehensive evaluation should seek to understand: (1) which outcomes have changed and by how much; (2) for which target groups; (3) which intervention components appear to be responsible for these changes; and (4) why some target groups or outcomes have failed to change.

These questions can be answered by using the same quantitative and qualitative methods used for problem assessment (Chapter 1, table 1-3), problem exploration (Chapter 2, table 2-5), and implementation monitoring. Evaluations are stronger if they combine several methods, since findings from one method can complement and help to explain the findings from another. Table 5-1 lists a number of resources that describe evaluation methods and tools to measure changes that take place in households, communities, health facilities, drug outlets, or school settings.[1]

Multi-faceted interventions usually have a broad range of effects. Figure 5-1 illustrates the potential hierarchy of effects, including facilitating participation among members of the target audience; stimulating positive responses among participants; improving participants' knowledge and skills; changing target health seeking and health care behaviors; improving the care system and general environment; and improving target health outcomes.

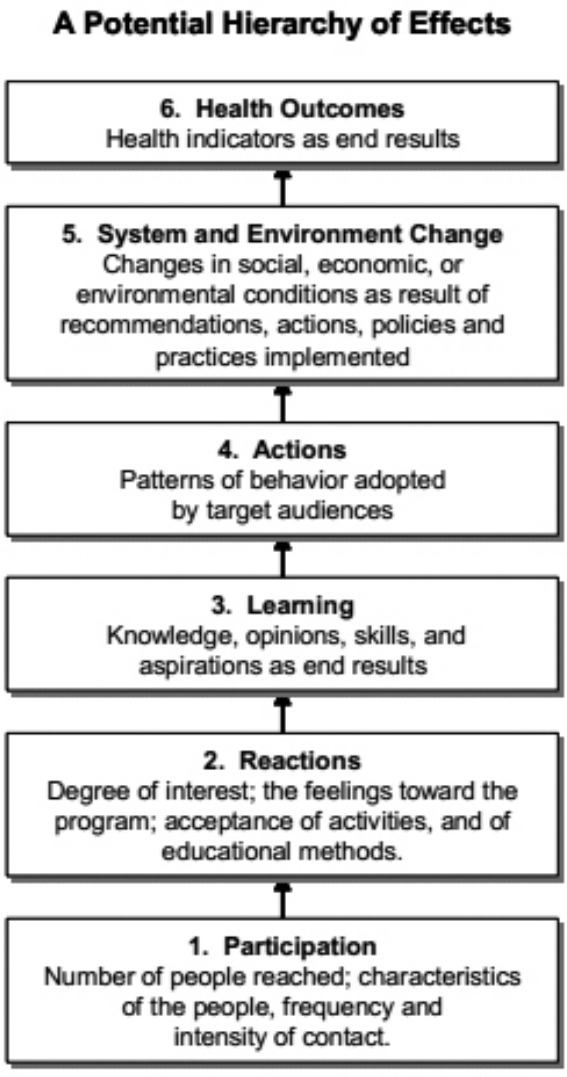



**Figure 5-1. Potential hierarchy of effects caused by interventions**

Source: Figure excerpted and adapted from Bennett and Rockwell, 1995, as presented in US Department of Health and Human Services, Centers for Disease Control, 1995[1]; http://www.iphi.nonprofitoffice.com/vertical/Sites/%7B00CFF503-04BE-4895-B1A4-FF765B2CE512%7D/uploads/%7B1D229D07-1D61-45C6-91BA-4CD61BC76856%7D.PDF

Frequently, an intervention will have significant effects in some areas, but no effect or even negative effects in others. For example, it might improve knowledge of guideline-recommended care among health care providers, but cause no change in their prescribing or dispensing behavior. Evaluations need to measure process and outcome indicators at all levels of the hierarchy to fully depict an intervention's effects, and to understand how it might need to be modified to improve outcomes.

Table 5-2 gives some examples of indicators that measure possible changes at different levels of the hierarchy of intervention effects, including monitoring indicators that use routine data to measure changes during implementation as well as health outcome indicators that are usually measured only during mid-point or final evaluations. Many indicators used to assess quality of child health care during a problem assessment (Chapter 1, table 1-4) can also be used to measure intervention effects. The evaluation strategy should build upon experience with the data collection approaches and data sources that were used to assess the current situation, explore problems, and monitor implementation of the intervention. In fact, in many situations, those data can serve as baseline measures for a pre-post evaluation.

Some interventions fail, not because they were poorly conceived, but because they were not implemented as planned. During intervention implementation, data should be collected to document all intervention activities (e.g., when training sessions take place, which people come to the training, what topics are covered, how many materials are distributed). If the intervention was intended to change some aspect of a system (e.g., offering exemptions from fees to poor patients, or frequency of supervisory visits), it is important to collect data on these aspects. This requires the working group to think carefully in advance of the intervention about how each implementation component can be monitored.

While we hope that interventions have positive effects, they can also have unintended negative ones, some of which are predictable. Evaluations should try to measure both intended and unintended effects. For example, if public health facilities introduce charges for brand name medicines, some patients may go to private providers where quality of care is lower. Or if caregivers begin to feel more confident about recognizing danger signs, they may inappropriately delay seeking care when needed. As much as possible, evaluations should try to anticipate and measure the most important of the unintended effects.

**Working Group Activity**
Develop a strategy to monitor implementation of the planned intervention and to evaluate its effects. If no one has had experience with evaluating interventions, engage a resource person familiar with evaluation methods to assist with the process. The plan should cover three major areas—the key questions to answer in the multidimensional evaluation, the overall evaluation strategy that will be used to answer these questions, and the data collection methods and indicators to assess different types of effects. Once you have outlined an overall plan, agree on responsibilities for implementing the different monitoring and evaluation components, and the timing for reporting monitoring and evaluation results.

## Disseminating Results

Data to monitor implementation processes are usually summarized at regular intervals throughout the implementation period in the form of pre-defined indicators, e.g., percentage of malaria cases that receive a rapid diagnostic test or percentage of CHWs with all essential medicines in stock. Typically, the working group and other key intervention stakeholders will track fluctuations of key indicators over time to ensure that the intervention is being implemented as planned and that it is achieving the desired changes. Using these monitoring data, implementation activities can be adjusted as needed during implementation to increase success. Frequently, these interim results are not made publicly available since they do not capture the intervention's full effects. However, they can be shared with partner organizations, funders, or the intervention target group to increase interest and ownership of results.

In contrast, data from the planned mid- or end-point evaluations that measure intervention outcomes are usually intended for broader public consumption. In addition to process measures, these evaluations will sometimes measure longer-term clinical outcomes, such as community pediatric ARI mortality rates or percentage of children hospitalized for severe malaria. The first step in preparing for dissemination is a wdetailed and comprehensive report that integrates results from different evaluation sources. This report can serve as a common reference for future presentations or policy summaries, ensuring consistency and helping to prevent conflicting interpretations, especially when findings indicate undesirable intervention effects.

Stakeholders usually believe in the value of any intervention they have implemented and they often have high expectations with regards to its outcomes. Evaluators should be particularly careful to present the results in a neutral way that is respectful of all stakeholders, but honest and transparent in presenting the full range of results. They should not omit negative findings or distort the results to make them politically acceptable.

It is critical to involve all stakeholders as the evaluation results are compiled, so that they can contribute insights to the interpretation of findings in advance of releasing the results to the public. Discussing results among a broad group of stakeholders helps to keep them engaged in the intervention process and ensures a wide range of feedback on intervention impacts.

## Scaling Up Successful Interventions

Some interventions are successful when implemented on a small scale, but far less successful when scaled up to an entire community, district, or to the country as a whole. The challenges and costs of scaling up health interventions have been written about extensively.[21,22,23,24]

One reason for encouraging active involvement by local and national stakeholders throughout intervention development and testing is to increase the chance of scaling up successful approaches. To maintain interest and commitment, programs should be scaled up as quickly and efficiently as possible. In some settings, the health system is strong enough to implement new approaches quickly. The challenge is much greater where health systems are less developed and more fragile, requiring a more incremental scale-up.

The speed of scaling up depends not only on political will and commitment, but also on the social, political, and economic context. Scaling up some interventions may require large increases in expenditure on child health. For effective planning, it is essential to be aware of the additional expenditures needed. Technical innovations, changes in patterns of health care provision, shifts in human resource availability, and integrating different services at the point of delivery may also influence the speed with which an intervention can be scaled up.

## Conclusions

In summary, monitoring and evaluation are key components in the overall process of developing effective interventions to improve the use of medicines for child illnesses. Regular monitoring is important to identify and correct problems as implementation progresses, and also to assess sustainability of results after the period of active implementation. The evaluation step is critical to learn what works, what does not work, and why, as well as to enable future decisions about dissemination to be informed by evidence about success. Well-designed evaluations also help to build knowledge that can be applied beyond a specific context and benefit future interventions.

# Chapter 5 Tables

### Table 5-1. Examples of Methods and Tools to Use for Monitoring and Evaluation

| Place of Assessment | Methods | Resource |
|---|---|---|
| Community, home, health facility, drug outlet | Questionnaires, surveys, check lists, interviews, documentation review, observation, focus groups, case reviews | Basic Guide to Program Evaluation[13] |
| Community, health facility, home, drug outlet, region/nation | Interviews, focus groups, questionnaires, field worker reports, ranking, video/audio stimuli, rating scales, critical event analysis, observation, self-drawings | Monitoring and Evaluation[7] (see especially p. 30-32) |
| Health facilities, community, region/ nation | Method selection | A Guide to Evaluation in Health Research[14] (especially step 10 on page 29) |
| Household and community, health system | Overview of child health program evaluation, quantitative and qualitative methods, comprehensive set of evaluation indicators | A Guide for Monitoring and Evaluating Child Health Programs — MEASURE Evaluation[5] |
| Community, school | Tool box for process evaluation: questionnaire surveys, focus groups, interviews, researcher observation of the intervention | Process Evaluation in Randomised Controlled Trials of Complex Interventions[15] |
| Health facility | Clinical trials | Practical Issues in Relation to Clinical Trials in Children in Low-Income Countries: Experience from the Front Line[16] |
| Community, home | Focus group interviews, mapping, photovoice | Multiple Methods in Qualitative Research with Children: More Insight or Just More?[17] |
| Region/nation | Structured interviews, community reports | Developing and Operationalizing a National Monitoring and Evaluation System for the Protection, Care and Support of Orphans and Vulnerable Children Living in a World with HIV and AIDS[18] |
| School | Structured interviews | Involving Children and Young People in Improving Local Healthcare Services[19] |

Another useful resource is The Health Manager's Toolkit: Monitoring and Evaluation.[20] The Health Manager's Toolkit help managers design and conduct monitoring and evaluation activities, including performance management, policy assessment, program review and evaluation, and monitoring and evaluation of training programs. The Toolkit also has a number of tools to help with the selection of indicators to gauge the progress and success of programs, systems, and interventions

**Table 5-2. Examples of Monitoring and Evaluation Indicators to Measure the Hierarchy of Effects of Interventions to Improve Use of Medicines for Children**

| Stage in effect hierarchy | Typical use* | Intervention target | Indicator |
|---|---|---|---|
| Participation | Monitoring | Caregiver | % of mothers participating in school-based education on care of sick children |
| | | Health provider | % of community health workers trained in community case management |
| | | Care system | % of private sector drug medicine outlets displaying educational material for customers |
| Reactions | Evaluation | Caregiver | % of caregivers who report trust in treating simple respiratory infections without antibiotics |
| | Monitoring | Health provider | % of public sector health providers satisfied with case management training program |
| Learning | Evaluation | Caregiver | % of caregivers who know key symptoms of side effects after treating a child with medicines |
| | | Health provider | % of private sector providers who know key first-line medicines recommended for child illnesses |
| Actions | Evaluation | Caregiver | % of caregivers seeking help within a defined period appropriate for symptom severity |
| | Monitoring | Health provider | % of children treated according to recommended treatment guidelines |
| System and environment change | Monitoring | Care system | % of key pediatric medicines found in stock at health facilities |
| | | Health provider | % of health providers in a district meeting defined standards of training for their duties |
| Health outcomes | Evaluation | Child | % of children with signs of pneumonia successfully treated with antibiotics in the community |
| | | | Community mortality rate for children under 5 with respiratory infections |

*Depends on source of data. Monitoring indicators are usually collected using routine data or surveys that take place during implementation; trend data on these indicators can also contribute to evaluations. Indicators that require household-level data or that involve large surveys are typically measured only during evaluations.

# Chapter 5 Reference List


1. US Department of Health and Human Services. Centers for Disease Control and Prevention. Office of the Director, Office of Strategy and Innovation. Introduction to Program Evaluation for Public Health Programs: A Self-Study Guide. [Internet]. 2005 [cited 2012 Oct 19]; available from: http://www.iphi.nonprofitoffice.com/vertical/Sites/%7B00CFF503-04BE-4895-B1A4-FF765B2CE512%7D/uploads/%7B1D229D07-1D61-45C6-91BA-4CD61BC76856%7D.PDF

2. Campbell, M. Framework for Design and Evaluation of Complex Interventions to Improve Health. BMJ 2000;321(7262):694–6. Available from: http://www.bmj.com/content/bmj/321/7262/694.full.pdf

3. CDC. Program Evaluation Resources [Internet]. 2012 [cited 2012 Oct 23]; available from: http://www.cdc.gov/eval/resources/index.htm

4. Work Group for Community Health and Development. Introduction to Evaluation [Internet]. 2012 [cited 2012 Oct 23]; available from: http://ctb.ku.edu/en/tablecontents/chapter_1036.aspx

5. Gage, A. J., Ali, D., Suzuki, C. Guide for Monitoring and Evaluating Child Health Programs — MEASURE Evaluation [Internet]. 2005 [cited 2012 Oct 19]; available from: http://www.cpc.unc.edu/measure/publications/ms-05-15

6. FOCUS on Young Adults (FHI). A Guide to Monitoring and Evaluating Adolescent Reproductive Health Programs — MEASURE Evaluation [Internet]. 2000 [cited 2012 Oct 23]; available from: http://www.fhi360.org/sites/default/files/media/documents/A%20Guide%20to%20Monitoring%20and%20Evaluating%20Adolescent%20Reproductive%20Health%20Programs%20-%20Part%201.pdf

7. Shapiro, J. Monitoring and Evaluation Toolkit [Internet]. www.civicus.org. 2011 [cited 2012 Oct 19]; available from: http://civicus.org/index.php/en/media-centre-129/toolkits/228-monitoring-and-evaluation

8. Management Sciences for Health. Monitoring and Evaluation Readings and Tools [Internet]. 2006; available from: http://erc.msh.org/mainpage.cfm?file=2.3.0.htm&module=info&language=English

9. World Health Organization. Multi-Country Evaluation of IMCI [Internet]. 2001 [cited 2012 Oct 21]; available from: http://apps.who.int/iris/bitstream/10665/67381/1/WHO_FCH_CAH_02.16.pdf

10. Bryce, J., Victora, C. G., Habicht, J.-P., Vaughan, J. P., Black, R. E. The Multi-Country Evaluation of the Integrated Management of Childhood Illness Strategy: Lessons for the Evaluation of Public Health Interventions. *Am. J. Public Health* 2004;94(3):406–15. Available from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1448266/

11. Victora, C. G. Context Matters: Interpreting Impact Findings in Child Survival Evaluations. *Health Policy and Planning* 2005;20(90001):i18–i31. Available from: http://heapol.oxfordjournals.org/content/20/suppl_1/i18.full.pdf+html

12. FOCUS on Young Adults (FHI). A Guide to Monitoring and Evaluating Adolescent Reproductive Health Programs. Chapter 5: Evaluation Designs to Assess Program Impact. 2000 [cited 2012 Oct 23]. http://www.fhi360.org/sites/default/files/media/documents/A%20Guide%20to%20Monitoring%20and%20Evaluating%20Adolescent%20Reproductive%20Health%20Programs%20-%20Part%201.pdf

13. McNamara, C. Authenticity Consulting, LLC. Basic Guide to Program Evaluation [Internet]. 2012 [cited 2012 Oct 19]; available from: http://managementhelp.org/evaluation/program-evaluation-guide.htm

14. Bowen, S. A. Guide to Evaluation in Health Research [Internet]. 2012. Canada Institute of Health Research; available from: http://www.cihr-irsc.gc.ca/e/documents/kt_lm_guide_evhr-en.pdf

15. Oakley, A., Strange, V., Bonell, C., Allen, E., Stephenson, J. Process Evaluation in Randomised Controlled Trials of Complex Interventions. BMJ 2006; 332(7538):413–6. Available from: http://www.bmj.com/content/bmj/332/7538/413.full.pdf

16. Molyneux, E., Mathanga, D., Witte, D., Molyneux, M. Practical Issues in Relation to Clinical Trials in Children in Low-Income Countries: Experience from the Front Line. Archives of Disease in Childhood [Internet] 2012 [cited 2012 Jul 3]; available from: http://adc.bmj.com/content/early/2012/04/12/archdischild-2011-301476.abstract

17. Darbyshire, P. Multiple methods in qualitative research with children: more insight or just more? Qualitative Research 2005; 5(4):417–36. Available from: http://qrj.sagepub.com/content/5/4/417.abstract

18. UNICEF. Developing and Operationalizing a National Monitoring and Evaluation System for the Protection, Care and Support of Orphans and Vulnerable Children Living in a World with HIV and AIDS [Internet]. UNICEF; 2009. Available from: http://www.unicef.org/aids/files/OVC_MandE_Guidance_FINAL_v3.pdf

19. Robertson-Smith, G., Martin, R. Involving Children and Young People in Improving Local Healthcare services [Internet]. NHS - Institute for Innovation and Improvement; 2010. Available from: http://www.institute.nhs.uk/images/ResearchAndEvaluationReports/Involving_CYP_Impact_Evaluation_Report_April_2010_FINAL.pdf

20. MSH. The Health Manager's Toolkit: Monitoring & Evaluation [Internet]. 2009 [cited 2012 May 1]; available from: http://erc.msh.org/toolkit/Category.cfm?lang=1&CID=11

21. Mangham, L. J., Hanson, K. Scaling Up in International Health: What Are the Key Issues? *Health Policy Plan* 2010;25(2):85–96. Available from: http://heapol.oxfordjournals.org/content/25/2/85.abstract

22. Johns, B. Costs of Scaling Up Health Interventions: A Systematic Review. *Health Policy and Planning* 2005;20(1):1–13. Available from: http://heapol.oxfordjournals.org/content/20/1/1.full.pdf+html

23. Subramanian, S., Naimoli, J., Matsubayashi, T., Peters, D. H. Do We Have the Right Models for Scaling Up Health Services to Achieve the Millennium Development Goals? *BMC Health Serv.* Res. 2011;11:336. Available from: http://www.biomedcentral.com/1472-6963/11/336

24. Hanson, K., Ranson, M. K., Oliveira-Cruz, V., Mills, A. Expanding Access to Priority Health Interventions: A Framework for Understanding the Constraints to Scaling-Up. J*ournal of International Development* 2003;15(1):1–14. Available from: http://onlinelibrary.wiley.com/doi/10.1002/jid.963/abstract

# Annex 2-1

## Examples of instruments that can be used to identify or explore problems in managing medicines for childhood illnesses

### Examples of Questions Used in Questionnaire Surveys

The following sections include examples of questions that are appropriate for a child health- services questionnaire that were developed for a study of community treatment of acute respiratory infections in Vietnam. These questions are divided into several key categories that are often included in health services questionnaire surveys—

- Screening questions to identify last illness
- Questions about care seeking and treatment
- Questions about caregiver attitudes toward childhood illnesses and medicines
- Questions about health provider attitudes toward childhood illnesses and medicines

## Example: Screening questions to identify last illness episode of children under age 5

*(First ask names of children under age 5, then complete column for each child)*

| | **Child 1** | **Child 2** | **Child 3** |
|---|---|---|---|
| What are the names of your children under age 5? | | | |
| How old is *(name)* now? (years, months) | \|__\|,\|__\|\|__\| | \|__\|,\|__\|\|__\| | \|__\|,\|__\|\|__\| |
| Sex? (0=female, 1=male) | \|__\| | \|__\| | \|__\| |
| At any time in the last 2 weeks, did *(name)* have any of the following symptoms? *(read and check all that apply)* | | | |
| Convulsions | \|__\| | \|__\| | \|__\| |
| Not willing to feed/drink | \|__\| | \|__\| | \|__\| |
| Wheezing | \|__\| | \|__\| | \|__\| |
| Rapid breathing | \|__\| | \|__\| | \|__\| |
| Cough | \|__\| | \|__\| | \|__\| |
| Fever | \|__\| | \|__\| | \|__\| |
| Ear discharge | \|__\| | \|__\| | \|__\| |
| Throat ache | \|__\| | \|__\| | \|__\| |
| Runny stool | \|__\| | \|__\| | \|__\| |
| Frequent stool | \|__\| | \|__\| | \|__\| |
| Nausea | \|__\| | \|__\| | \|__\| |
| No specific symptoms | \|__\| | \|__\| | \|__\| |
| For how many days did *(name)* have these symptoms? (days) | \|__\|\|__\| | \|__\|\|__\| | \|__\|\|__\| |
| Does *(name)* still have these symptoms? (days) | \|__\|\|__\| | \|__\|\|__\| | \|__\|\|__\| |
| Did you seek treatment for *(name)* outside your home at any time during this illness? (0=no, 1=yes) | \|__\| | \|__\| | \|__\| |
| How much did you spend to treat this illness episode? (local currency) | \|__\|\|__\|\|__\| | \|__\|\|__\|\|__\| | \|__\|\|__\|\|__\| |

## Example: Questions on care seeking and treatment

The following questions refer to the last time (name) had these symptoms. Can you tell me everything you did to manage the illness? Start at the beginning from the time you realized (name) was ill. *(Read each question in the first column. If the answer is yes, read the question at the top of each column and wait for respondent to answer. After answer is complete, fill in all the responses that apply.)*

| **Treatment site** | **Which symptoms did (name) have at this point in the illness?** | | **Why did you choose this place for care?** | | **Which medicines did you use or obtain at this place?** | | **Why did you choose these particular medicines?** | |
|---|---|---|---|---|---|---|---|---|
| **Did you treat (name) at home during this illness before seeking any outside treatment?**<br>Yes \|__\|<br>No \|__\| | Convulsions | \|__\| | Disease was mild | \|__\| | *No medication used* | \|__\| | *No medication used* | \|__\| |
| | Not willing to feed/drink | \|__\| | Has treated problem before | \|__\| | Traditional medicine | \|__\| | Had at home | \|__\| |
| | Wheezing | \|__\| | Not able to skip work | \|__\| | Antibiotic: *# of days?…* | \|__\| | Easy to obtain | \|__\| |
| | Rapid breathing | \|__\| | To save money | \|__\| | Analgesic | \|__\| | Rapid recovery | \|__\| |
| | Cough | \|__\| | Medicine available at home | \|__\| | Antipyretic | \|__\| | Affordable/free | \|__\| |
| | Fever | \|__\| | No place was open | \|__\| | Cough medicine | \|__\| | Used medicine before | \|__\| |
| | Ear discharge | \|__\| | Advice from relative | \|__\| | Anti-nausea | \|__\| | Had prescription | \|__\| |
| | Throat ache | \|__\| | Advice from friend | \|__\| | Antidiarrheal | \|__\| | Suggested by relative | \|__\| |
| | | \|__\| | | \|__\| | Antimalarial | \|__\| | Suggested by friend | \|__\| |
| | Nausea | \|__\| | | \|__\| | Vitamin | \|__\| | Suggested by drug seller | \|__\| |
| | | \|__\| | | \|__\| | | \|__\| | | \|__\| |
| | Other (specify): | \|__\| | Other (specify): | \|__\| | Other (specify): | \|__\| | Other (specify): | \|__\| |

| Treatment site | Which symptoms did (name) have at this point in the illness? | | Why did you choose this place for care? | | Which medicines did you use or obtain at this place? | | Why did you choose these particular medicines? | |
|---|---|---|---|---|---|---|---|---|
| **Did you seek care outside the home during this illness?**<br>Yes \|__\|<br>No \|__\|<br><br>**Where did you go first?**<br>Hospital \|__\|<br>Health center \|__\|<br>Health post \|__\|<br>Private clinician \|__\|<br>Community worker \|__\|<br>Traditional healer \|__\|<br>Pharmacy/drug shop \|__\|<br>General store/market \|__\| | Convulsions | \|__\| | Disease was mild | \|__\| | *No medication used* | \|__\| | *No medication used* | \|__\| |
| | Not willing to feed/drink | \|__\| | Has treated problem before | \|__\| | Traditional medicine | \|__\| | Had at home | \|__\| |
| | Wheezing | \|__\| | Not able to skip work | \|__\| | Antibiotic: *# of days?…* | \|__\| | Easy to obtain | \|__\| |
| | Rapid breathing | \|__\| | To save money | \|__\| | Analgesic | \|__\| | Rapid recovery | \|__\| |
| | Cough | \|__\| | Medicine available at home | \|__\| | Antipyretic | \|__\| | Affordable/free | \|__\| |
| | Fever | \|__\| | No place was open | \|__\| | Cough medicine | \|__\| | Used medicine before | \|__\| |
| | Ear discharge | \|__\| | Advice from relative | \|__\| | Anti-nausea | \|__\| | Had prescription | \|__\| |
| | Throat ache | \|__\| | Advice from friend | \|__\| | Antidiarrheal | \|__\| | Suggested by relative | \|__\| |
| | | \|__\| | | \|__\| | Antimalarial | \|__\| | Suggested by friend | \|__\| |
| | Nausea | \|__\| | | \|__\| | Vitamin | \|__\| | Suggested by drug seller | \|__\| |
| | | \|__\| | | \|__\| | | \|__\| | | \|__\| |
| | Other (specify): | \|__\| | Other (specify): | \|__\| | Other (specify): | \|__\| | Other (specify): | \|__\| |
| **Did you seek care anyplace else after this?**<br>Yes \|__\|<br>No \|__\|<br><br>**Where did you go first?**<br>Hospital \|__\|<br>Health center \|__\|<br>Health post \|__\|<br>Private clinician \|__\|<br>Community worker \|__\|<br>Traditional healer \|__\|<br>Pharmacy/drug shop \|__\|<br>General store/market \|__\| | Convulsions | \|__\| | Disease was mild | \|__\| | *No medication used* | \|__\| | *No medication used* | \|__\| |
| | Not willing to feed/drink | \|__\| | Has treated problem before | \|__\| | Traditional medicine | \|__\| | Had at home | \|__\| |
| | Wheezing | \|__\| | Not able to skip work | \|__\| | Antibiotic: *# of days?…* | \|__\| | Easy to obtain | \|__\| |
| | Rapid breathing | \|__\| | To save money | \|__\| | Analgesic | \|__\| | Rapid recovery | \|__\| |
| | Cough | \|__\| | Medicine available at home | \|__\| | Antipyretic | \|__\| | Affordable/free | \|__\| |
| | Fever | \|__\| | No place was open | \|__\| | Cough medicine | \|__\| | Used medicine before | \|__\| |
| | Ear discharge | \|__\| | Advice from relative | \|__\| | Anti-nausea | \|__\| | Had prescription | \|__\| |
| | Throat ache | \|__\| | Advice from friend | \|__\| | Antidiarrheal | \|__\| | Suggested by relative | \|__\| |
| | | \|__\| | | \|__\| | Antimalarial | \|__\| | Suggested by friend | \|__\| |
| | Nausea | \|__\| | | \|__\| | Vitamin | \|__\| | Suggested by drug seller | \|__\| |
| | | \|__\| | | \|__\| | | \|__\| | | \|__\| |
| | Other (specify): | \|__\| | Other (specify): | \|__\| | Other (specify): | \|__\| | Other (specify): | \|__\| |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Did you seek care anyplace else after this?**<br>Yes \|__\|<br>No \|__\|<br><br>**Where did you go first?**<br>Hospital \|__\|<br>Health center \|__\|<br>Health post \|__\|<br>Private clinician \|__\|<br>Community worker \|__\|<br>Traditional healer \|__\|<br>Pharmacy/drug shop \|__\|<br>General store/market \|__\| | Convulsions | \|__\| | Disease was mild | \|__\| | *No medication used* | \|__\| | *No medication used* | \|__\| |
| | Not willing to feed/drink | \|__\| | Has treated problem before | \|__\| | Traditional medicine | \|__\| | Had at home | \|__\| |
| | Wheezing | \|__\| | Not able to skip work | \|__\| | Antibiotic: *# of days?…* | \|__\| | Easy to obtain | \|__\| |
| | Rapid breathing | \|__\| | To save money | \|__\| | Analgesic | \|__\| | Rapid recovery | \|__\| |
| | Cough | \|__\| | Medicine available at home | \|__\| | Antipyretic | \|__\| | Affordable/free | \|__\| |
| | Fever | \|__\| | No place was open | \|__\| | Cough medicine | \|__\| | Used medicine before | \|__\| |
| | Ear discharge | \|__\| | Advice from relative | \|__\| | Anti-nausea | \|__\| | Had prescription | \|__\| |
| | Throat ache | \|__\| | Advice from friend | \|__\| | Antidiarrheal | \|__\| | Suggested by relative | \|__\| |
| | | \|__\| | | \|__\| | Antimalarial | \|__\| | Suggested by friend | \|__\| |
| | Nausea | \|__\| | | \|__\| | Vitamin | \|__\| | Suggested by drug seller | \|__\| |
| | | \|__\| | | \|__\| | | \|__\| | | \|__\| |
| | Other (specify): | \|__\| | Other (specify): | \|__\| | Other (specify): | \|__\| | Other (specify): | \|__\| |

## Example: Questions on health provider knowledge of childhood illnesses

I would like to ask you some questions about some of the different childhood illnesses you may attend to here.

<table>
<tr><td colspan="4">1. Can you tell me the symptoms you might find in a two-year old child who is suffering from a common cold? (Do not read. Listen to responses and check all that apply)</td></tr>
<tr><td>☐ Cough<br>☐ Blocked or runny nose<br>☐ Fever<br>☐ Sore throat<br>☐ Itchy eyes</td><td>☐ Chest in-drawing<br>☐ Difficulty breathing<br>☐ Runny stool<br>☐ Frequent stools</td><td>☐ Thirst<br>☐ Sweating<br>☐ Vomiting<br>☐ Earache<br>☐ Headache</td><td>☐ Child is lethargic<br>☐ Child cannot sleep<br>☐ Child refuses to eat<br>☐ Don't know<br>☐ Other _____</td></tr>
<tr><td colspan="2">2. What is the most effective drug to treat a child who has only a cough and a runny nose?<br>(Do not read. Listen and write down the response)</td><td colspan="2">_____<br>☐ I don't know</td></tr>
<tr><td colspan="4">3. Can you tell me the symptoms you might find in a two-year old child suffering from pneumonia?<br>(Do not read. Listen to responses and check all that apply)</td></tr>
<tr><td>☐ Cough<br>☐ Blocked or runny nose<br>☐ Fever<br>☐ Sore throat<br>☐ Itchy eyes</td><td>☐ Chest in-drawing<br>☐ Difficulty breathing<br>☐ Runny stool<br>☐ Frequent stools</td><td>☐ Thirst<br>☐ Sweating<br>☐ Vomiting<br>☐ Earache<br>☐ Headache</td><td>☐ Child is lethargic<br>☐ Child cannot sleep<br>☐ Child refuses to eat<br>☐ Don't know<br>☐ Other _____</td></tr>
<tr><td colspan="4">4. What would you say are the key symptoms of a case of childhood pneumonia apart from a common cold? (Do not read. Listen and check all that apply)</td></tr>
<tr><td>☐ Cough<br>☐ Blocked or runny nose<br>☐ Fever<br>☐ Sore throat<br>☐ Itchy eyes</td><td>☐ Chest in-drawing<br>☐ Difficulty breathing<br>☐ Runny stool<br>☐ Frequent stools</td><td>☐ Thirst<br>☐ Sweating<br>☐ Vomiting<br>☐ Earache<br>☐ Headache</td><td>☐ Child is lethargic<br>☐ Child cannot sleep<br>☐ Child refuses to eat<br>☐ Don't know<br>☐ Other _____</td></tr>
<tr><td colspan="2">5. What is the most effective drug to treat a child with pneumonia?<br>(Do not read. Listen and write down the response)</td><td colspan="2">_____<br>☐ I don't know</td></tr>
<tr><td colspan="4">6. Can you tell me the symptoms you might find in a two-year-old child suffering from malaria?<br>(Do not read, Listen to responses and check all that apply)</td></tr>
<tr><td>☐ Cough<br>☐ Blocked or runny nose<br>☐ Fever<br>☐ Sore throat<br>☐ Itchy eyes</td><td>☐ Chest in-drawing<br>☐ Difficulty breathing<br>☐ Runny stool<br>☐ Frequent stools</td><td>☐ Thirst<br>☐ Sweating<br>☐ Vomiting<br>☐ Earache<br>☐ Headache</td><td>☐ Child is lethargic<br>☐ Child cannot sleep<br>☐ Child refuses to eat<br>☐ Don't know<br>☐ Other _____</td></tr>
<tr><td colspan="2">7. What is the most effective drug to treat a child with malaria?<br>(Do not read. Listen and write down the response)</td><td colspan="2">_____<br>☐ I don't know</td></tr>
<tr><td colspan="4">8. Can you tell me the symptoms you might find in a two-year-old child suffering from?<br>(Do not read, Listen to responses and check all that apply)</td></tr>
<tr><td>☐ Cough<br>☐ Blocked or runny nose<br>☐ Fever<br>☐ Sore throat<br>☐ Itchy eyes</td><td>☐ Chest in-drawing<br>☐ Difficulty breathing<br>☐ Runny stool<br>☐ Frequent stools</td><td>☐ Thirst<br>☐ Sweating<br>☐ Vomiting<br>☐ Earache<br>☐ Headache</td><td>☐ Child is lethargic<br>☐ Child cannot sleep<br>☐ Child refuses to eat<br>☐ Don't know<br>☐ Other _____</td></tr>
<tr><td colspan="2">9. What is the most effective drug to treat a child with?<br>(Do not read. Listen and write down the response)</td><td colspan="2">_____<br>☐ I don't know</td></tr>
</table>

## Example of In-Depth Interview Protocol

### *Nigeria Malaria Study: In-depth Interview for School Teachers*

**INTRODUCTORY REMARKS**

Hello, I am _____ from _____.

What is your name? _____

We've been told that malaria is one of the common health problems in this area. We are interested to know more about the views of community members about malaria, and your experience with it as a teacher. We are also interested in any problems or concerns you might have. We would appreciate it if you could spend about 15-20 minutes with us discussing malaria. Is this okay with you?

I would like to go over some of the general rules for our conversation.

There are no correct answers.

- We want your honest opinions.
- All of our conversation will be confidential.
- Do you have any questions?

WARM UP

What is your position here at the school?

How long have you been working here?

*Probes:* How long have you lived in this area?
Where is your home area?

Do you think that malaria is an important problem in this school and in this area?

**COMMUNITY PERCEPTION OF MALARIA**

Can you describe to me some of the things that people in this community believe about malaria?

*Probes:* What do they think causes the disease?
What is your view on this?
How do people in this community know when someone has malaria?
What is your opinion about this?
Do you think most people have a good idea of when they have malaria?

Do people here do anything to try to prevent malaria?

*Probes:* Do they take any herbs or drugs to prevent getting the disease?
Use bed nets?
Use insecticides?
Any environmental sanitation?
Avoid going out at certain hours?

**MALARIA TREATMENT**

I am interested in what someone usually does when they think they have malaria. What do people do first?

*Probes:* What are the reasons for these actions?

Does everyone do that?

What do they do next if that does not work?

How do people treat malaria in this community?

*Probes:* What type of treatment do people prefer for malaria when they go to the health centers?
Name/color/taste of tablets preferred.
Do they have any preference between injections and tablets?
Why?

What are some of the home remedies people use in treating malaria?

*Probes:* Which are the most popular?
Which are the most effective?
When do people use home remedies rather than drugs?

When people go to a government clinic or hospital to treat malaria, what do they expect?

*Probes:* Are their expectations usually fulfilled?
If not, what would they do?
How about you?

Are people given enough information on how to take medicine when they go to the clinic?

*Probes:* What are some of the things they are not told?
Who do you think should be telling them these things?
How could this be improved?

**COMMENTS**

Are there any suggestions or comments about malaria that we haven't yet talked about which you would like to discuss?

**CLOSE**

Thank you very much for sharing your opinions about this important problem.

## Example of Focus Group Discussion Guide

### *WHO/CDD Focus Group Moderators' Guide for Drug Sellers*

**INTRODUCTION AND STATEMENT OF PURPOSE**

Hello, my name is _____. I work with the Diarrhea Disease Control Program of the Ministry of Health. I would like to talk to you about diarrheal disease, the customers who visit your shop to be treated for it, and the drugs they usually buy.

Please feel free to discuss the questions I ask openly and honestly. There are no correct answers and anything you think or feel will be valuable. We hope to be able to learn a lot from each of you. I will try to make sure that we have time to talk about all we are supposed to, and that you all have a chance to give your opinions.

I would like to introduce _____, who also works with the CDD Program. She/he will be taking notes during our discussion, so that we can remember to put everything you discuss into our report. You will see that she/he is also going to tape our conversation. This will be another way for us to remember what is said when we are writing our report. The tape will not be used for any other purpose.

**WARM-UP**

I would like to give you a chance to get to know one another. Could you please tell us your name and describe a little about the pharmacy/drug shop in which you work?

*Go around circle and wait for each person to introduce himself or herself.*

This is the last time you will be asked to speak one by one. After this, please feel free to jump into the conversation any time you would like to say something.

**TOPICS**

**<u>Diarrheal Disease and Treatment</u>**

First, I would like to get some impressions from you about diarrhea? Could you tell me, when you think of diarrhea, what is the <u>first</u> thing that comes to your mind?

*Listen for responses, then probe:*

- *Can you tell me more about that?*
- *Could you give me an example?*
- *How do you feel about that?*

What do you do for a customer who comes into your shop and asks your help for a case of diarrhea in a two-year-old child?

- *What else do you ask?*
- *Do you tell the customer anything else?*
- *Do you always do the same thing?*
- *Why or why not?*

Why do you use drugs to treat diarrhea in children?

- *How do you decide when to use drugs?*
- *Which drugs do you prefer?*

What are the advantages and disadvantages of using ORS? Lomotil syrup? Tetracycline? Streptomagma?

- *Why is that?*
- *Is it always this way?*

What would you do to convince your colleagues to sell more ORS to treat diarrhea?

- *Who would be most receptive?*
- *Are there reasons why they might not be convinced?*

**Behavior of Customers**

How do customers usually decide on which drugs to purchase for a case of diarrhea?

- *Do you help them decide in any way?*
- *Do they buy different drugs for adults and children?*
- *Which drugs are the most popular?*

What do customers say about ORS?

- *Do they know what it is for?*
- *Where have they heard about it?*
- *Do they know how to use it?*
- *Are they satisfied with it?*

How would your customers react if you suggest that they purchase ORS for every case of diarrhea in a child?

- *Do they expect such advice?*
- *Would they follow your advice?*
- *Would they still buy other drugs?*
- *What would convince them?*

**Role of Information**

How do you learn about new drugs or new ways to treat health problems?

- *Any other ways?*
- *How about doctors?*
- *How about other people in the pharmacy profession?*
- *Which way is most important?*
- *Why?*

What kind of information would you like to have?

- *Anything else?*
- *Where could you get this information?*
- *Would you have time to read about new ideas?*

Who would you trust to give you reliable information?

- *Anyone else?*
- *How about the Ministry of Health?*
- *The Faculty of Pharmacy?*
- *Why?*

**Economic Incentives**

Do customers ever have a hard time paying for the drugs they need?

- *How do you know who will have trouble paying?*
- *What do you do*?

Do customers equate the price of a drug with how well it works?

- *Is there a price below which customers feel that a drug is not worthwhile?*
- *Are there any exceptions to this?*

Do customers who can't afford all their drugs ever ask your advice about which drugs to buy?

- *How often?*
- *What do you do?*
- *Anything else?*

Are some drugs more profitable to you than others?

- *Which ones?*
- *Does this ever change?*
- *Why or why not?*

Would there be reasons why you might actively promote a product that is less profitable?

- *For what reasons?*
- *Can you think of a case where this happens now?*
- *What is the smallest profit you could accept for such products?*

Is ORS a profitable drug for your store?

- *Why is this the case?*
- *Does the cost of ORS affect sales?*
- *Does it compete with any other drugs?*
- *Which ones?*

**CLOSE OF GROUP**

I'm sorry but we seem to have run out of time. May I ask if anyone has any final issues they feel they would like to bring up? [Allow brief discussion.] I would like to thank each of you for your time and valuable contribution. You have helped us to learn a lot, and we are most grateful.

## Example of Structured Observation Protocol

### *Bangladesh Study—Clinical Encounter Observation Form*

**IDENTIFYING INFORMATION**

| | | |
|---|---|---|
| Health Facility: | | Dept: |
| Visit ID: | Date: | Time of Visit: |
| Patient Age (yrs,mos): | Sex: | Accompanied by: |

**PRESCRIBER-PATIENT INTERACTION**

| | |
|---|---|
| Length of Clinical Consultation (minutes): | Provider Type: |

**DIAGNOSTIC COMMUNICATION**

| | Prescriber Asked | Patient Volunteered | Not Discussed |
|---|---|---|---|
| Length of diarrhea episode | | | |
| Association of onset with foods eaten | | | |
| Diarrhea frequency/volume | | | |
| Appearance of stool | | | |
| Child still eating/drinking/breast-feeding | | | |
| Previous treatment for this episode | | | |

**EXAMINATION/TREATMENT**

| | Examined | Not Examined | Does Not Apply |
|---|---|---|---|
| Temperature (measured or felt) | | | |
| Pulse | | | |
| Skin turgor | | | |
| Fontanel (if child under 6 months) | | | |
| Diaper examined (if soiled) | | | |
| Stool culture ordered | | | |
| Sterile technique followed for injection | | | |

**COMMUNICATION/ADVICE**

| | Prescriber Initiated | Patient Initiated | Not Discussed |
|---|---|---|---|
| Specific drugs/injection desired | | | |
| Information on drugs prescribed | | | |
| Eating/feeding/breast-feeding advice | | | |
| Information about diarrhea prevention | | | |

**DESCRIPTION OF CLINICAL ENCOUNTER**

| | | | | | |
|---|---|---|---|---|---|
| 1. | Patient greets prescriber | Yes | _____ | No | _____ |
| 2. | Prescriber reciprocates greeting | Yes | _____ | No | _____ |
| 3. | Friendly conversation | Yes | _____ | No | _____ |
| 4. | Reassurance to the child | Yes | _____ | No | _____ |
| 5. | Reassurance to the adult | Yes | _____ | No | _____ |
| 6. | Friendly eye contact with adult | Yes | _____ | No | _____ |
| 7. | Encouraged to describe problem freely | Yes | _____ | No | _____ |
| 8. | Doctor ask questions about problem history | Yes | _____ | No | _____ |
| 9. | Doctor listens to responses | Yes | _____ | No | _____ |
| 10. | Doctor explains exam, treatment | Yes | _____ | No | _____ |
| 11. | Doctor uses technical language only | Yes | _____ | No | _____ |
| 12. | Clinical encounter ends abruptly | Yes | _____ | No | _____ |
| 13. | Adult appears to want more information | Yes | _____ | No | _____ |
| 14. | Adult appears to expect additional treatment | Yes | _____ | No | _____ |
| 15. | Adult appears to understand doctor's explanation | Yes | _____ | No | _____ |

**OBSERVER NOTES AND COMMENTS:**

## Example of Simulated Visit Data Collection Instrument

### *WHO/CDD Simulated Acute Respiratory Infection Patient Survey*

Name of Assessor: Date: _____

Name of Outlet: Time: _____

Type of Outlet: _____

1. Did drug seller ask age of the child? Yes ____ No ____

2. Did drug seller ask if the child is having fast/difficult breathing? Yes ____ No ____

3. Did drug seller ask if the child is able to drink? Yes ____ No ____

4. Did drug seller ask if the child is abnormally sleepy? Yes ____ No ____

5. Did drug seller ask if the child had any convulsions? Yes ____ No ____

6. Did drug seller ask if the child is having fever? Yes ____ No ____

7. Other (describe below):

8. Which products were purchased? Write 'NONE' if none were purchased.

| NAME & PACKAGE SIZE | UNITS | PRICE |
|---|---|---|
| 1. | | |
| 2. | | |
| 3. | | |
| 4. | | |

9. Describe the advice given to you on how to take drugs.

| DRUG | DOSE | FREQUENCY | DURATION |
|---|---|---|---|
| Drug 1 | ____ teaspoonful/tablet/capsule | ____ times a day for | ____ days |
| Drug 1 | ____ teaspoonful/tablet/capsule | ____ times a day for | ____ days |
| Drug 1 | ____ teaspoonful/tablet/capsule | ____ times a day for | ____ days |
| Drug 1 | ____ teaspoonful/tablet/capsule | ____ times a day for | ____ days |

10. What explanations were given about the drugs purchased?

| EXPLANATION | DRUG 1 | DRUG 2 | DRUG 3 | DRUG 4 |
|---|---|---|---|---|
| Description of what drugs do | | | | |
| Cautions, side effects | | | | |

11. About which of the following did the pharmacy attendant give advice? (Tick as many as needed).

_____ Visit a health worker/doctor now
_____ Take full course of the antibiotic purchased
_____ Visit a health worker/doctor if the breathing becomes fast/difficult
_____ Visit a health worker/doctor if the child is not able to drink
_____ Visit a health worker/doctor if no improvement for two days
_____ Continue to give fluids and foods as usual
_____ Continue to breast feed frequently
_____ Keep the young infant warm
_____ Other (Describe below)

12. ASSESSOR IMPLEMENTING SCENARIO I: PLEASE FILL IN BELOW THE INFORMATION FOR THE PRODUCTS INITIALLY RECOMMENDED.

| NAME & PACKAGE SIZE | UNITS | PRICE |
|---|---|---|
| 1. | | |
| 2. | | |
| 3. | | |
| 4. | | |

13. Please write any additional comments below.

# Annex 3-1

## Persuasive Approaches to Educational Interventions

As described in Chapter 2, the strongest interventions are built around a detailed understanding of the target audience, the nature of the problems of interest, the factors that cause them to occur, and barriers that stand in the way of more appropriate practices. The chances of changing behaviors with educational interventions are increased by focusing attention not only on the content of the information conveyed, i.e., the message, but also on how, when, to whom, and by whom the message is delivered. This approach is known as persuasive education.

## Key Considerations when Designing Persuasive Education

### *Target Specific Behaviors*

Interventions should target specific problem behaviors. Persuasive education aims to change behavior and not simply to transmit information. Persuasive communication with caregivers or health providers should focus on changing decisions and actions, rather than on increasing knowledge. The key behavioral messages should always relate to what to do and what not to do in real-life situations.

### *Know the Target Group*

A persuasive educational intervention should have a clearly defined target group. The more specifically the target group can be defined (e.g., by its demographic and socioeconomic characteristics, geographic location), the more likely an intervention will reach the intended recipients.

### *Focus on the Credibility of the Messenger*

The impact of communication depends in part on the credibility of the source. Involving respected individuals and organizations as intervention sponsors can increase its acceptability. Messages from a respected source are more likely to be believed and acted upon. In some situations, MoH is not seen as a highly respected source of information, and a persuasive intervention originating from MoH may be more effective if it involves co-sponsors (e.g., professional societies, trade organizations, nongovernmental organizations, community groups, or respected individuals).

### *Develop Clear and Consistent Behavior Messages*

Intervention messages should state clearly what should change (problem behaviors) and what is encouraged (recommended behaviors). The most effective persuasive education emphasizes only a few messages at a time to be sure that the audience retains the key points. Information not relating directly to these target behaviors may be distracting. Repeating and reinforcing messages on several occasions increases the chances that they will be adopted.

### *Use Effective Interactive Communication*

Information can be delivered in many ways—directly to the target group, indirectly through existing channels of communication, or by print or broadcast media. In many social networks, natural opinion leaders who shape norms and introduce new information can be an effective channel of communication. Educational materials by themselves usually do not change behavior, but they are a necessary part of any persuasive intervention. Attractive, well-designed, and well-tested materials present the key intervention messages in an accessible way. It is critical to choose the materials (posters, flyers, pamphlets) most likely to reach the target audience.

### *Develop Opportunities for Repeated Face-to-Face Interactions*

Research has shown that interactive, two-way communication is more likely to change behavior than one-way, lecture-style communication. Interventions are likely to be more successful if they involve one-on-one or small group interactions, emphasize mastery of practical skills, and repeat interactions to build trust and reinforce positive changes. Interactive communication allows the person delivering a message to adapt its content to individual listeners and add relevant supporting information. The presenter can also help to solve problems that arise when new behaviors are tried. It is usually more effective to present both sides of controversial topics—for example, a strong preference for injections by providers or patients—rather than to ignore the opposing point of view, but to give clear reasons for preferring the recommended behavior.

### *Take into Account Organizational, Social, and Economic Contexts*

Persuasive education should try to account for contextual factors such as financial incentives, social and organizational hierarchies, peer relationships, cultural beliefs and preferences, limitations on availability of medicines, and degree of regulatory enforcement.

## Effective Communication Techniques

### *Direct Interactions with the Target Group*

In some persuasive educational programs, members of an intervention team interact directly with health providers or caregivers to communicate key concepts in managing childhood illnesses. These interactions can occur wherever members of the target group can be found regularly or on specific occasions.

Health facilities are the most common place for direct persuasive interactions about child health. Persuasive education for health providers can be scheduled during staff meetings, and programs for caregivers can occur during illness visits, well-child clinics, or special meetings. However, direct persuasive interactions with caregivers can also occur at schools during parents' meetings, at churches or community gatherings (e.g., women's groups), during special programs on market days, and so forth. Similarly, interactions with health providers might be conducted at monthly management meetings, during professional meetings (e.g., continuing education meetings of the pharmaceutical society), or off-site training programs.

### *Indirect Interactions through Trained Intermediaries*

Another model is to train key people in the community who are in regular contact with members of the target groups (similar to a "training of trainers" approach). These trained individuals then serve as intermediaries to communicate key messages to members of the target group during normal interactions or through special programs. A variety of people can fill this role, including community health workers, midwives, traditional healers, teachers, pharmaceutical company representatives, wholesalers, or peer educators. Choosing the right individuals and training them well are the keys to success.

Some of the key characteristics of effective persuasive communicators are listed below[4]:

- **Good communication skills:** Can communicate a defined amount of information in a clear, concise, and persuasive way
- **Sufficient background:** Familiar with basic scientific information underlying intervention messages to be able to answer questions by members of the target group
- **Credible:** Perceived by members of the target group as approachable and respected source of information
- **Alert:** Able to remain aware during face-to-face interactions of the key points to be covered and of the reactions of the target audience
- **Energetic:** Outgoing, lively, and able to communicate a sense of enthusiasm about the intervention messages
- **Motivated:** Committed to child health or to the value of the material to be communicated, and not just motivated by financial incentives
- **Flexible:** Can smoothly adjust the contents, level, and pace of communication to fit the comprehension and current awareness of the target audience
- **Calm under pressure:** Able to deal effectively with unexpected changes in the discussion and to re-direct the conversation back to key messages

Training of intermediaries should include the following elements:

- Clinical and medicine-specific knowledge necessary to understand the problems targeted by the intervention
- Major "selling points" for each behavior change recommendation

4 Includes material from: WHO-INRUD Promoting Rational Drug Use Course, Session 10: Principles of Persuasive Face-to-Face Education

- Principles of effective communication and persuasion
- Role-playing to practice the recommended approaches and messages
- Pilot sessions with actual members of the target group in real-world settings to refine the communication approach
- Practical discussion about how to plan interactive sessions with members of the target group or how to incorporate persuasive messages into ongoing activities

### *Media Campaigns*

Mass communication can reach a broader audience of caregivers or health care workers with key messages about managing childhood illnesses. Although not as powerful as personal communication, media-based approaches offer a chance to deliver persuasive information to a much wider audience and to repeat and reinforce key messages over time. Media campaigns are more likely to succeed when they are well-targeted to a defined group or population.

The first step in developing an effective strategy is to understand the target group, including demographic and socio-economic characteristics, knowledge and attitudes about childhood illnesses, how they use health services (e.g., provider preferences, patterns of service use, sources of medicines), and how to communicate with them effectively (e.g., level of literacy, language preferences, common expressions for key concepts). One crucial component is to understand how frequently members of the target group have access to different types of media and which media channels they perceive as useful sources of health information.

The next step is to develop a communications plan that can serve as a road map for subsequent activities. This plan should describe the objectives of the media campaign, the key messages, and a detailed strategy for delivering these messages. A broad-based campaign will often combine channels to maximize exposure to the key messages, including visual materials (posters, flyers, pamphlets, brochures), mass media (newspapers, radio, television), and more interactive methods (specially developed theater skits, songs, or recorded video or audio presentations).

The third step in a media campaign is to prepare communication resources, including developing and pre-testing materials, determining when and how the communication will occur (e.g., scheduling media spots, booking venues, arranging staffing), and training staff to be involved in the campaign. Although frequently neglected, pre-testing messages and materials with members of the target group is crucial for success.

The final step is to implement and monitor the media campaign. Systems should be set up to monitor whether members of different target groups are actually being exposed to the materials and messages, whether they understand the information, and whether the information is having any impact on the target behaviors.

## Key Factors to Consider When Preparing Print Materials

Print materials are a valuable part of most persuasive education. Print materials used in interventions can take many forms, including:

- Posters or charts aimed at customers or patients that contain key messages about medicines for childhood illnesses
- Graphic materials distributed to patients or customers that explain how and when to take medicines
- Laminated desk or wall charts that display simple decision trees for diagnosing and treating sick children
- Reference cards for pharmacy counter attendants or health workers to consult when asking about symptoms or communicating essential advice to patients
- Materials to promote better dispensing such as ink stamps to prepare standard dispensing labels or low-cost printed dispensing envelopes.

Print materials can target many different factors that cause problems (see Chapter 2). Research has shown that print materials by themselves generally do not change behaviors. Print materials should be designed to change behavior rather than to increase knowledge. Although more knowledge is never harmful, knowledge gaps are often not the primary cause of problems.

Those who read educational materials should be left with a clear understanding of what they should or should not do to deal effectively with the problem addressed. The key information in persuasive print materials is often contained in the headlines, as shown in the examples in figure 1. Generally, printed materials should not include large quantities of text. However, key messages should be repeated whenever possible. If readers want to learn more about the details or background of the recommendations, print materials can refer to publications or sources supporting the messages. Figure 1 examples also feature prominent references to credible sponsoring organizations.

As advertisers know, establishing a well-known "brand identity" for a product or an organization is an effective way to enhance consumer recognition, promote trust, and increase acceptance. The brand identity of a persuasive intervention can be enhanced by having a consistent look and style in the design of its print materials. The design does not have to be elaborate to be effective. Consistent messages, artistic style, fonts, and images can help readers to connect to related materials (figures 2 and 3).

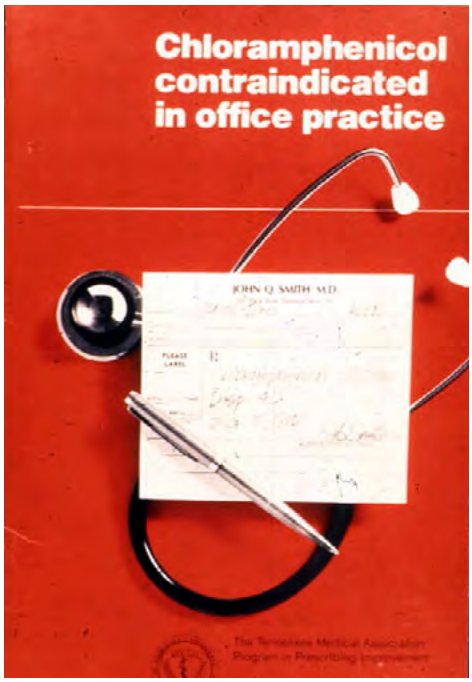
Persuasive printed materials should emphasize decisions and actions. Some key design principles can help to make printed materials more persuasive in changing behavior:[5]

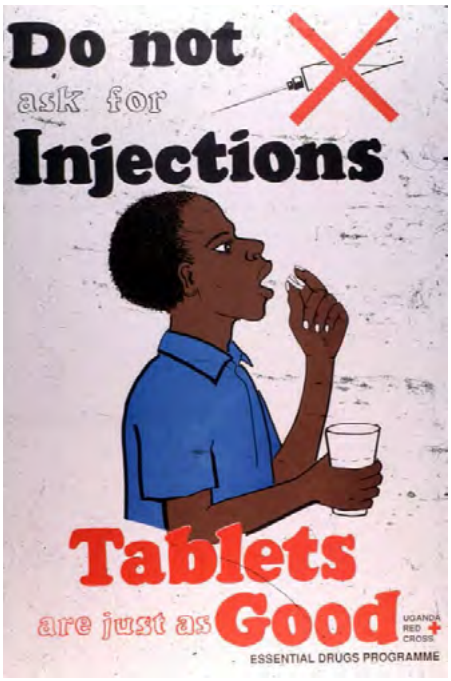
- **Address the causes of problems:** Explore the reasons for problem behaviors before designing materials and address them explicitly in the messages.
- **Emphasize decisions and actions:** Incorporate simple recommendations about what to do or not to do, and why, while minimizing unnecessary information.
- **Capture attention with headlines:** Major headlines encourage someone to read the rest of the text, while secondary headlines can emphasize recommended behaviors.
- **Use brief and simple text:** Lengthy materials are expensive to produce and can be difficult to digest; test readability with the intended audience before printing materials.
- **Focus on a few key messages:** Multiple messages are harder to remember; use a positive approach, since negative messages may alienate.
- **Repeat important messages:** Repetition increases memory and learning; if possible, repeat the main message in the headline and concluding section.
- **Use visually appealing illustrations:** People are more attracted to and positively disposed toward pictures with which they can identify.
- **Feature respected sponsors:** Professional organizations or community institutions may be more trusted than government institutions.
- **Involve the target group:** Materials should be developed in partnership with members of the target group to increase ownership and understanding.

5 Includes material from: WHO-INRUD Promoting Rational Drug Use Course, Session 15: Designing Effective Printed Educational Materials; http://archives.who.int/PRDUC2004/RDUCD/Acrobat_Files/SG_Acrobat_Files/15_Designing_Effective_Printed_Ed_SG.pdf

**Annex 3.1, Figure 1. Examples illustrating use of behavior-oriented headlines, brief text, and credible sponsors in designing persuasive print materials.**



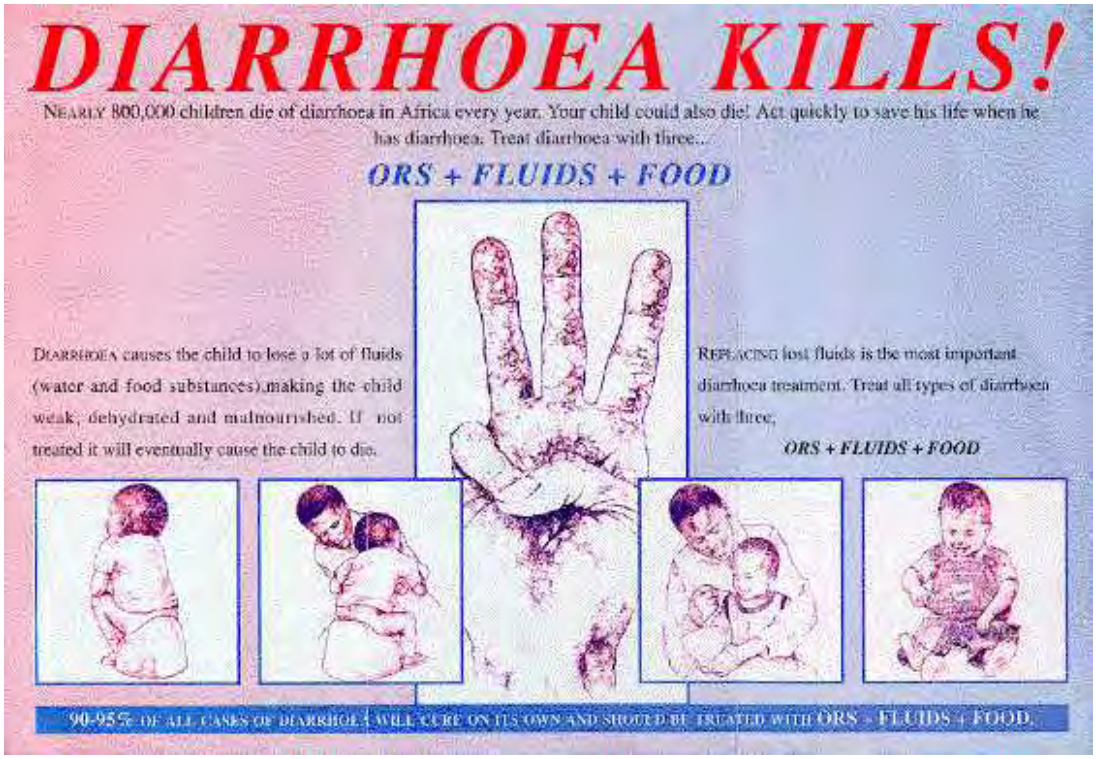


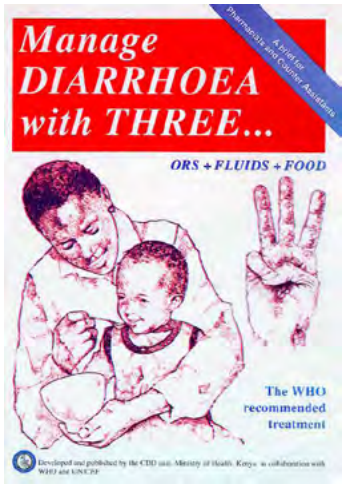

*Source: WHO-INRUD Promoting Rational Drug Use Course, Session 15: Designing Effective Printed Educational Materials*

## Annex 3.1, Figure 2. Using consistency of messages, styles, and images to establish a "brand identity" to unify the persuasive materials in a diarrhea intervention[3]

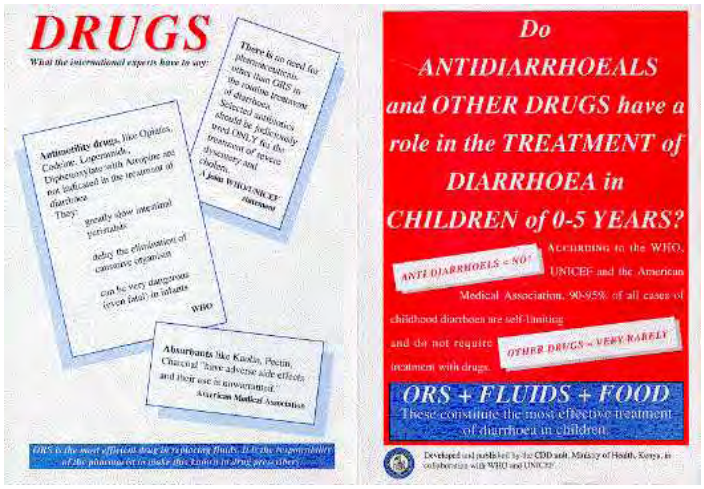
**Poster displayed for customers in pharmacies**




**Pharmacists' training material 1 (front and sample page)**




**Pharmacists' training material 2 (back and front)**




*Source: WHO CDD Guide for Improving the Practices of Pharmacists and Licensed Sellers of Drugs*

3 These materials were developed before the recommendation to use zinc in addition to ORS for diarrhea.

## Annex 3.1, Figure 3. Using consistency of messages, styles, and images to establish a "brand identity" to unify the persuasive materials in a malaria intervention

**Prepackaged antimalarials, coartem© for CCM in Rwanda**


Treatment dose packet colored in yellow
for 36-59 months with a picture of an older child


Treatment dose packet colored in red
for 0–35 months with a picture of a young child


Interior of Blister Packets of antimalarials with instructions and explanations

*Source: CoreGroup/USAID Guide for Program Manager, Community Case Management Essentials: Treating Common Childhood Illnesses in the Community*

# Annex 4

## Annex 4-1: Examples of Interventions

### Annex 4-1.1. Nepal Family Health Program (NFHP and NHFP II)

| | |
|---|---|
| Brief description | The project combined persuasive education with supervision to mobilize local community resources and enhance the capacity of mothers and community health workers to manage acute respiratory infections (ARIs) in children. This experience is relevant to countries with a low level of economic development, a challenging physical environment, and poorly developed infrastructure. |
| Country | Nepal |
| Year | 2001-2012 |
| Target disease(s) | Pneumonia, ARIs |
| Target population(s) | Children under 5 |
| Target sector(s) | Public sector |
| Approach(es) | Persuasive<br>Managerial<br>Community-based IMCI |
| Intervention key components | • Female community health volunteers (FCHVs) recruited from local mothers' groups were trained to educate and motivate villagers to manage pneumonia using first-line antibiotics at home.<br>• Pictorial training manuals, educational materials, and reporting booklets were available to address the low literacy-level of some FCHVs.<br>• FCHVs delivered persuasive messages to parents of young children, promoting early recognition and management of pneumonia at home.<br>• A technical working group of government officials, local experts, and donor partners pilot-tested the approach before expanding it nationally.<br>• Mothers' group and village leader orientation meetings were held in all villages to encourage prompt care-seeking and local support.<br>• District health office staff was trained to supervise and monitor FCHVs with standardized checklists.<br>• Community-based pneumonia treatment data became part of the government's routine Health Monitoring Information System.<br>• Information about supply of first-line antibiotics for pneumonia was integrated into the Logistic Management Information System. |
| Lessons learned | • Community health workers can increase the number of pneumonia cases receiving correct case management in resource-constrained settings, with appropriate health systems' support for logistics, supervision, and monitoring.<br>• The value of timely treatment of child pneumonia was quickly recognized by communities, resulting in a rapid increase in the number of cases of pneumonia receiving appropriate treatment and a reduction in pneumonia mortality.<br>• Job performance by FCHVs was best when they were regularly supervised by village health workers (VHWs).<br>• Support for the FCHV program from a dedicated ministry and visionary health department leadership allowed rapid national scale-up.<br>• Community-based management of pneumonia can be scaled up and provides an effective approach to reducing child deaths in countries faced with insufficient health care human resources. |

## Problem Identification

In Nepal, pneumonia is one of the leading causes of child mortality. Few cases of pneumonia reach health facilities in a timely way. Past efforts to combat ARI were limited to treatment at facilities, and community health volunteers had no role in ARI management.

## Exploring Causes

Community surveys and focus groups led decision-makers to conclude that poor geographic access to health facilities and limited knowledge of caregivers about signs and symptoms were the main causes of problems in ARI management. Few local providers could advise or assist parents when children were sick. A previous community health leader program, which used mainly male volunteers, had failed to interact effectively with mothers and received little support from staff in health posts.

### Tools and Job Aids Used at Community Level

- ARI classification card
  - Infants <2 months
  - Infants 2 months–5 years
- CHW treatment card
  - Infants 2-12 months
  - Children 1-5 years
- CHW treatment booklet
- CHW referral booklet
  - Infants <2 months
  - Infants 2 months–5 years
- Home therapy card
- Monitoring forms
- Training manual
- Orientation booklet

## Designing the Intervention[1,2,3,4,5]

**Context:** The objective was to bring services closer to the community through FCHVs who would diagnose and treat ARIs under careful supervision, refer complex cases to health posts (health providers), and educate villagers to carry out healthy behaviors at home and use health providers effectively.

**Target groups:** Mothers of young children, FCHVs, village health workers, and health post staff

**Messages and materials:** Key intervention messages included: (1) parents should know the signs and symptoms of pneumonia and seek timely care; (2) FCHVs should manage ARIs and educate mothers; and (3) health posts should assure appropriate treatment of ARIs in the community. Materials to communicate these messages were designed for both literate and non-literate mothers, FCHVs, VHWs, and HP staff.

- FCHVs used pictorial treatment charts and referral books; VHWs used slightly more complex forms.
- Mothers and FCHVs were taught to diagnose pneumonia by using a timer to count respiration in children with history of fever, blocked or runny nose, loss of appetite, or difficulty breathing.
- Guidelines for early detection and treatment of pneumonia were also developed and made available at the health posts.

**Credibility:** The initiative was promoted by a female health minister with a strong commitment to women's empowerment and social participation. FCHVs were well-known and respected members of mothers' groups in each community ward. A group of respected trainers from the Ministry of Health, local and international nongovernmental organizations, and local artists with expertise in health developed educational materials and implemented the program.

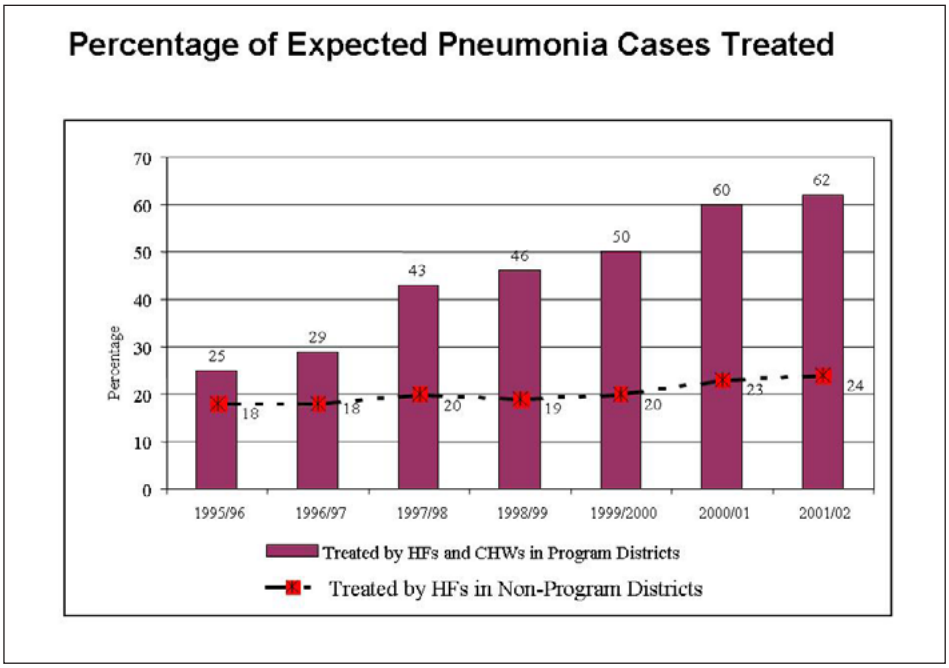
**Communication channels:** Materials for managing ARIs at home were developed and distributed to mothers via the FCHVs, CHWs, at mothers' groups meetings, or during home visits. Educational messages were also delivered through a radio communication project.

**Activities:** The intervention involved integrated training, close monitoring of quality of care, and good logistic support. Key interactions included training at mothers' groups meetings on the importance of early detection of ARIs and the need to seek care promptly. FCHVs completed 12 days of participatory training in how to identify children with severe ARIs, provide first-aid, refer, and facilitate mothers' groups. Every six months, two-day meetings were conducted for FCHVs to refresh learning and introduce new subject areas. Trained VHWs were instructed to supervise, assist, and encourage FCHVs in their work. Health post staff members were trained in early detection and treatment of pneumonia.

## Implementation

The intervention was implemented in phases: form an ARI working group in district → develop pilot project → revise intervention → adapt → scale up.

- In each district, an ARI working group was created to promote community participation and community involvement in management of ARIs.
- Several intervention models were tested. Most interventions started in two districts, were evaluated, and then expanded into other districts.
- Efforts were made to integrate the interventions with ongoing activities.




## Monitoring and Evaluation

At supervisory visits, district and health post staff assessed diagnostic skills and collected data on monitoring indicators recorded in FCHV registers. Increased contact with VHWs resulted in higher levels of FCHV knowledge and activity.

## References

1. Dawson, P., Pradhan, Y., Houston, R., Karki, S., Poudel, D., Hodgins, S. From Research to National Expansion: 20 Years' Experience of Community-Based Management of Childhood Pneumonia in Nepal. *Bull. World Health Organ.* 2008;86(5):339–43. Available from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2647452/pdf/07-047688.pdf

2. John Snow, Inc. Nepal Family Health Program (NHFP) [Internet]. 2001 [cited 2013 Mar 2]; available from: http://www.jsi.com/JSIInternet/IntlHealth/project/display.cfm?ctid=na&cid=na&tid=40&id=147

3. John Snow, Inc. Nepal Family Health Program II (NFHP II) [Internet]. 2007 [cited 2013 Mar 2]; available from: http://nfhp.jsi.com/index.htm

4. John Snow, Inc. NFHP Technical Brief 1: Female Community Health Volunteers [Internet]. [cited 2013 Mar 2]; available from: http://www.jsi.com/JSIInternet/Inc/Common/_download_pub.cfm?id=12140&lid=3

5. John Snow, Inc. NFHP Technical Brief 4: Innovations in Community Based Integrated Management of Childhood Illness [Internet]. [cited 2013 Mar 2]; available from: http://www.jsi.com/JSIInternet/Inc/Common/_download_pub.cfm?id=12143&lid=3

## Annex 4-1.2. Persuasive Training to Improve Treatment of Diarrhea[4] in Pharmacies in Kenya and Indonesia

| | |
|---|---|
| Brief program description | The core of the recommended intervention was brief, persuasive education of pharmacists and counter attendants on the principles of proper diarrhea management. This approach, developed by WHO, was field-tested in Kenya and Indonesia and has been adopted in similar interventions elsewhere. The program encourages MoH to expand efforts to improve diarrhea management to private sector pharmacies and licensed drug sellers. |
| Country | Kenya, Indonesia |
| Year | 1991-1992 |
| Target disease(s) | Diarrhea |
| Target population(s) | • Children and adults |
| Target sector(s) | • Private sector |
| Approach(es) | • Persuasive education<br>• Supportive counter aids to guide care<br>• Tailored materials for customers |
| Intervention components | • Interviews with pharmacy leaders and focus group discussions with pharmacists and counter attendants to decide how to focus the intervention and to identify key messages<br>• Measurement of existing practices in private retail settings by using simulated customers so that details about actual behavior could be included in the intervention messages<br>• An intervention involving brief face-to-face persuasive sessions, either one-on-one with pharmacists or in small groups of counter attendants<br>• Targeted print materials for counter attendants and customers<br>• Sponsorship by credible organizations and individuals, including the MOH Diarrhea Treatment Program, the pharmacy association, university faculty, and international partners, such as UNICEF and WHO |
| Lessons learned | • Brief, targeted persuasive interactions can persuade counter attendants to recommend more clinically appropriate products for common conditions, such as diarrhea, coughs and colds, and malaria, even if this sometimes means selling less-profitable medicines<br>• Given staff turnover and pressure to maximize sales, short-term changes in practice are unlikely to persist unless they are reinforced<br>• Little communication occurs between counter attendants and customers at pharmacies or medicine shops, and it is difficult to improve communication with this type of intervention<br>• Support of the local professional society or trade organization enhances the credibility of interventions in the private sector and encourages greater acceptance by private retailers |

### Problem Identification

Despite efforts to increase the use of oral rehydration salts (ORS) and reduce mortality among children with diarrhea, inappropriate treatment in private pharmacies is widespread.

### Exploring Causes

Simulated caregiver visits to pharmacies during exploratory studies in Kenya and Indonesia demonstrated high sales of antibiotics and antidiarrheals, with little questioning of customers about symptoms or advice

4 This intervention was implemented before zinc with ORS was recommended for treatment of diarrhea.

about diarrhea or medicines. Surveys of counter attendants revealed substantial misconceptions about diarrhea, dehydration, and its treatment. Focus group discussions and pharmacy surveys explored knowledge gaps and the underlying causes of retail sales behavior. Lack of correct knowledge by counter attendants is complicated by strong consumer medicine preferences, economic incentives to sell unnecessary medicines, biased commercial medicine information, and intensive pressure by drug company representatives.

## Designing the Intervention[1,2,3]

**Context:** The WHO *Guide for Improving Diarrhoea Treatment Practices of Pharmacists and Licensed Drug Sellers* was used to design and tailor the intervention in both Kenya and Indonesia. The multifaceted interventions included brief, face-to-face, small group educational sessions for counter attendants, printed job aids to use during the dispensing process, and targeted educational materials with complementary messages for customers.

**Target group:** The intervention targeted pharmacy owners, pharmacists, and counter attendants.

**Communication model:** Pharmacy owners and pharmacists were first visited individually in their shops to gain support for the intervention and to review intervention messages. The intervention used brief, persuasive, face-to-face educational sessions for counter attendants in local restaurants, facilitated by trained outreach educators.

**Activities:** The intervention included visits to private pharmacies to obtain the support of pharmacy owners and pharmacists and small group training of counter attendants. The 1-2 hour training sessions were conducted in local restaurants after hours or on weekends to encourage attendance. Follow-up visits were conducted at participating pharmacies to deliver training certificates, provide posters for display to customers, and brief any staff unable to attend the educational sessions. In Kenya, training took place in two phases: Nairobi pharmacies (wave 1, n = 58) received the intervention in the first phase, and pharmacies from Nakuru and Kisumu (wave 2, n = 24) received training in the second phase (and were controls for the first phase); pharmacies from Mombasa (control, n = 25) received no training and served as controls throughout the study period.

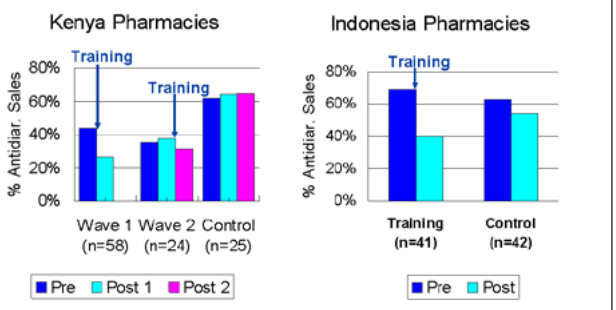
**Messages and materials:** The key messages included—

- Fluid loss is the reason diarrhea is dangerous, and ORS replaces lost water and minerals.
- Blood in stool, frequency, and fever are symptoms of diarrhea caused by bacteria.
- Antibiotics are useful only to treat diarrhea caused by bacteria.
- Antidiarrheals are never useful, are costly, and expose children to unnecessary risks.
- Children with fever, bloody stools, or chronic diarrhea should be seen by a health worker.

These key messages were included in several types of printed materials that were pre-tested using in-depth interviews and focus group discussions:

- A brochure for pharmacy staff promoting ORS and other fluids as the recommended treatment for diarrhea
- A job aid to use while dispensing that discusses proper use of ORS
- A brochure aimed at pharmacy staff to discourage the use of antidiarrheals
- A poster to be displayed in the shop highlighting ORS, food, and fluids as the recommended diarrhea treatment

**Credibility:** The interventions in both countries were supported by credible sponsors including the Pharmaceutical Society, university faculty, WHO, and UNICEF and their sponsorship was highlighted in the educational materials.




**Antidiarrheal Sales to Simulated Customers Following Counter-Attendant Training**

## Implementation

MOH staff conducted exploratory research to identify the best intervention approach, assisted by university faculty and local private consulting firms. All intervention activities were carried out by teams led by the directors of the MOH Diarrhea Control Programs; trainers included MOH staff and representatives of the local Pharmaceutical Society.

## Monitoring and Evaluation

Short-term evaluations (one month after the training in both intervention waves) were carried out using simulated customers to measure improvement in the management of diarrhea diseases, and these evaluations indicated initial program success. As with many interventions conducted in private retail settings, no further evaluation or reinforcement activities were planned, so questions remain about the long-term outcomes and sustainability of the positive effects.

## References

1. Ross-Degnan, D., Soumerai, S. B., Goel, P. K., et al. The Impact of Face-to-Face Educational Outreach on Diarrhoea Treatment in Pharmacies. *Health Policy Plan* 1996;11(3):308–18. Available from: http://heapol.oxfordjournals.org/content/11/3/308.long

2. Goel, P. K., Ross-Degnan, D., McLaughlin, T. J., Soumerai, S. B. Influence of Location and Staff Knowledge on Quality of Retail Pharmacy Prescribing for Childhood Diarrhea in Kenya. *Int. J. Qual. Health Care* 1996;8(6):519–26. Available from: http://intqhc.oxfordjournals.org/content/8/6/519.long

3. Goel, P., Ross-Degnan, D., Berman, P., Soumerai, S. Retail Pharmacies in Developing Countries: A Behavior and Intervention Framework. *Soc. Sci. Med.* 1996;42(8):1155–61. Available from: http://www.ncbi.nlm.nih.gov/pubmed/8737433

## Annex 4-1.3. Engaging Patent Medicine Vendors to Improve Malaria Treatment in Nigeria

| | |
|---|---|
| Brief program description | This intervention combined training for patent medicine vendors (PMVs) with the introduction of pre-packaged, age-specific formulations of chloroquine (CQ) and sulfadoxine-pyrimethamine (SP), the recommended treatment for malaria at the time. |
| Country | Nigeria |
| Year | 2003-2005 |
| Target disease(s) | Malaria |
| Target population(s) | • Children and adults |
| Target sector(s) | • Private sector |
| Approach(es) | • Persuasive<br>• Managerial |
| Intervention key components | • The Ministry of Health (MoH) engaging PMVs as partners to improve malaria treatment<br>• Participatory peer-educator training to promote best practices in selling malaria medicines<br>• Local production and promotion of affordable, pre-packaged, age-specific formulations of medicines for children<br>• Comprehensive social marketing and behavior change activities targeting caregivers<br>• Strong collaboration with other successful ongoing MoH initiatives |
| Lessons learned | • Involving international organizations or university-based research groups can improve credibility and increase financial sustainability<br>• Many caregivers do not access expensive media such as television or magazines, so using a variety of media channels with coordinated messages increases community exposure<br>• Stickers displayed prominently in shops were an effective strategy to encourage PMVs to undergo training and allowed customers to easily recognize trained vendors |

### Problem Identification

In Nigeria, high malaria-endemicity, parasite resistance to affordable medicines, and inadequate access to treatment facilities make malaria the leading killer of children. As in much of sub-Saharan Africa, many Nigerian caregivers first seek treatment for fever in children from PMVs, who are established members of the community. Therefore, the PMVs represent a potential asset for managing malaria, providing that the advice and treatment they dispense are consistent with government guidelines and best malaria treatment practices.

### Exploring Causes

Previous interventions to improve malaria treatment in Nigeria engaged PMVs and drug seller associations as partners, but actual community engagement was minimal. Those interventions showed that trained PMVs maintained improved knowledge and practices for malaria management while community practices remained inappropriate. At the same time, experiences from Kenya showed evidence that combining PMV training with vendor-to-vendor education or another outreach communication program could improve knowledge of malaria management among shopkeepers, pharmacy workers, and caregivers better than PMV education alone.

### Designing an Intervention[1,2,3]

**Context:** Previous interventions targeting PMVs to improve malaria treatment in Nigeria were not totally successful because of the lack of focus on the first point-of-care and involvement of the community. The PMV intervention, drawing on the Kenyan experience, utilized a participatory, peer-educator training approach that focused on key practices for malaria management with strong community involvement. A census of PMVs and PMV training sessions and follow-up were conducted. A pre-packaged dose of CQ or

SP for children (the recommended malaria treatment at the time of the intervention) was introduced, and a comprehensive social marketing component to improve management of malaria both at health facilities and at home was instituted.

**Target group**: The main objective of the intervention was to target PMVs and reach out as much as possible to shopkeepers and pharmacy attendants at all levels of the public and private sectors in Nigeria. Other intended targets of the intervention were caregivers of children under five.

**Design and content of PMV intervention:** The PMV training consisted of seven essential components: (1) advocacy and partner coordination, (2) PMV census, (3) identification of master and PMV trainers, (4) training of trainers, (5) community-based PMV training, (6) communication support for materials and mass media promotion, and (7) PMV support.

**Messages, materials, and interaction:** Training and communication materials focused on three key messages: (1) immediate treatment of children under five with fever using an appropriate (preferably pre-packaged) dose of CQ or SP, (2) immediate referral of children with signs of severe illness to a health facility, and (3) use of insecticide-treated nets to prevent malaria. The heart of the PMV training was a focused, one-day session conducted by PMV trainers and organized and hosted by the community. The training sessions had a high degree of trainee participation and interaction. The afternoon session involved role-playing targeted to improve PMV–caretaker interactions and ensuring that PMVs ask key questions about symptoms and the course of illness.

**Credibility:** The intervention was made possible by the existence of an ongoing community organization project. Several leading international organizations, notably the USAID BASICS Project and Johns Hopkins University, supported the implementation of the PMV training.

## Implementation

The promotion of the intervention involved radio broadcasting, billboard, and marketplace promotion of pre-packaged antimalarials. Radio was also used to encourage early treatment of malaria; each series was broadcast three or four times daily for six weeks. The PMVs themselves promoted their shop and services by displaying a shop sticker given out at training.

The intervention implementation used an integrated approach that included (1) strong community-based Catchment Area Planning Committees (CAPCs), supported by MoH; (2) highly participatory, peer-directed training to improve PMV malaria management practices; (3) a comprehensive social marketing and a behavior change communication strategy that included mass media campaigns targeting caregivers; (4) coordination of the PMV training intervention with the introduction of age-specific, pre-packaged antimalarials; and (5) a strong collaboration among various partners.

## Monitoring and Evaluation

PMVs who attended the training were given a shop sticker to serve both as an indicator of quality for their shop and as their social contract with the community to recommend or sell only appropriate treatment for malaria. The CAPC was given the responsibility of educating caregivers about the intervention, selecting PMVs, and visiting PMV shops on a quarterly basis to reinforce the importance of the pledge. Although evaluation of the intervention showed positive results, key challenges to long-term success were high vendor turn-over rates in shops, the need for continuous retraining, and lack of patient compliance with the recommended treatment regimens.

## References

1. Greer, G., Akinpelumi, A., Madueke, L., et al. Improving Management of Childhood Malaria in Nigeria and Uganda by Improving Practices of Patent Medicine Vendors [Internet]. 2004 [cited 2012 Sep 25]; available from: http://www.basics.org/documents/pdf/ImprovingMalariaMgmtPMVs.pdf

2. Okeke, T. A., Uzochukwu, B. S. Improving Childhood Malaria Treatment and Referral Practices by Training Patent Medicine Vendors in Rural South-East Nigeria. *Malar. J.* 2009;8:260. Available from: http://www.malariajournal.com/content/8/1/260

3. Okeke, T. A., Uzochukwu, B. S., Okafor, H. An In-Depth Study of Patent Medicine Sellers' Perspectives on Malaria in a Rural Nigerian Community PubMed - NCBI. *Malaria Journal* 2006;1(5):97. Available from: http://www.malariajournal.com/content/5/1/97

## Annex 4-1.4. Contracting with Private Providers to Improve Child Health Care in Uganda

| | |
|---|---|
| Brief program description | This national strategy used a technique known as education, negotiation, and persuasion (ENP) to improve the practices of private health providers in treating childhood illnesses. Unlike typical training, ENP uses specific information about current practices as a point of reference for negotiating changes to improve quality of care. A "contract" describes the particular changes to be achieved. |
| Country | Uganda |
| Year | 2002-2007 |
| Target disease(s) | Malaria, diarrhea, and ARIs |
| Target population(s) | • Children and adults |
| Target dector(s) | • Private sector |
| Approach(es) | • Persuasive<br>• Managerial |
| Intervention key components | • Providing information on evidence-based case management to providers, in groups or individually<br>• Providing feedback to providers regarding their current treatment practices<br>• Negotiating contracts with providers in which they select specific practices among those recommended with which they will comply<br>• Ongoing monitoring and feedback of data about compliance with the contract to providers and to the communities |
| Lessons learned | • Partnership between MoH and private health care providers can improve their quality of care, based on criteria in government-approved standard treatment guidelines.<br>• The ENP approach engaged private providers as stakeholders and incorporated their knowledge and experience into quality improvement, resulting in a sense of shared responsibility for improving performance. |

### Problem Identification

In Uganda, malaria, diarrhea, and acute respiratory infections (ARIs) are the leading causes of death in children under five. A nationwide study showed that more than two-thirds of caregivers for sick children seek care from formal or informal private providers, most of who are not registered with authorities. In 2000, a situational analysis by the Child Health Unit of the Uganda MoH in collaboration with the Support for Analysis and Research in Africa (SARA), Project showed specific examples of inappropriate practices by private providers.

### Exploring Causes

Simulated visits were used to profile key pediatric health care practices among private medicine vendors (PMVs) to identify appropriate common practices that should be reinforced and inappropriate ones that needed modification. This exploratory approach replaced previously used verbal case reports (VCRs) collected through a household survey which asked mothers of children with an acute illness in the previous two weeks to recall the provider seen and the care process for that illness.

### Designing an Intervention[1,2,3,4]

**Context:** ENP was identified as a promising approach for improving private provider practices. This approach obtains specific data on current practices and uses that as a starting point for negotiating changes to correct inappropriate practices. Participants are then asked to "contract" to adopt the new practices. ENP approaches tested in India and Pakistan showed moderate results. One major change in the model was to replace VCRs with simulated visits to shops to gather information on current practices for feedback to participants.

**Target group**: An inventory of the number and type of private providers provided detailed information to guide decisions on which providers to target. The inventory showed that PMVs constituted the vast majority of private providers. Thus the ENP approach targeted PMVs, including drug shops and ordinary shop attendants, many of whom had not completed high school and typically did not have access to basic medical equipment.

**Design and content of the intervention:** The intervention model involved four components:

- Providing information on appropriate care for sick children to providers, in groups, or individually
- Providing feedback to providers regarding their current treatment practices
- Negotiating contracts with providers in which they select specific practices among those recommended with which they will comply
- Ongoing monitoring and feedback of information about compliance with the contract to providers and to the communities

Although none of these components are new, their combination as an intervention targeting private practitioners is a unique and promising approach.

**Messages, materials, and interactions:** District health staff assisted by consultants provided feedback to PMVs and invited them to a two-day negotiation training that involved sign-off on a contract pledging specific actions to improve care for malaria, ARIs, and diarrhea in children. There were no additional payments to PMVs attached to following the agreement or penalties if they did not comply. They also received behavior change communication materials to use, distribute, and display in their shops.

The simulated visit activity consisted of four components: training of trainers (TOT); training of mystery clients; simulated visit survey; and data analysis. A training manual for mystery clients and a guide for simulated visits were prepared by BASICS II and SARA staff and consultants. A TOT was held for district-level MoH staff who, in turn, trained the actual mystery clients who were nurses, community health workers, and teachers.

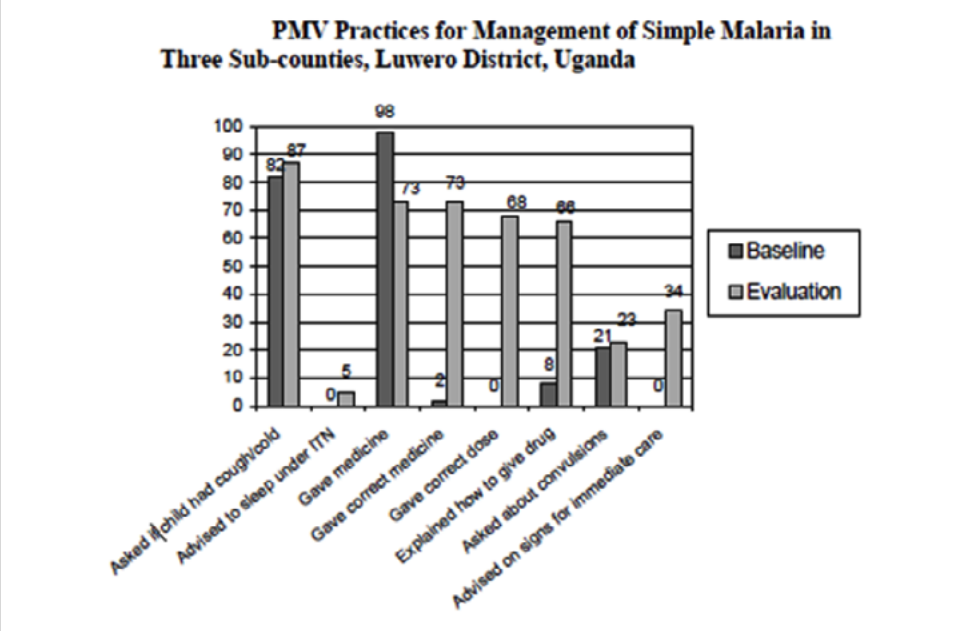
**Credibility:** A district committee determined the intervention should focus on owners and attendants of drug shops and clinics. The intervention also received the endorsement of government officials, nongovernmental organizations, and private associations. There were also strong advocacy and partnership activities among MoH, SARA, and the BASICS II projects throughout.

## Implementation

The negotiation intervention was intended to foster ownership of key decisions at the local level. Results of the problem assessment were presented to the district committee, which determined that the intervention should focus on owners and attendants of drug shops and clinics. Health assistants from MoH directly contacted the PMVs. MoH staff, assisted by BASICS and SARA consultants, moderated the training sessions and provided supervision; BASICS and SARA consultants assisted in these tasks and produced communication support materials for use by PMVs and supervised the project. The partners produced communication support materials for use by PMVs.

## Monitoring and Evaluation

Activities were monitored by health workers who were responsible for follow-up visits to each PMV about one month after training, with subsequent visits planned every quarter. During the visits, supervisors asked to see the contracts and inquired about perceived difficulties in adhering to the contract. The supervisor discussed strategies to overcome difficulties and reinforced positive changes in practices. Overall, short-term results were encouraging, with improvements recorded for a number of important PMV practices, such as recommending the correct medicine, recommending the correct dose, and giving the correct dose.



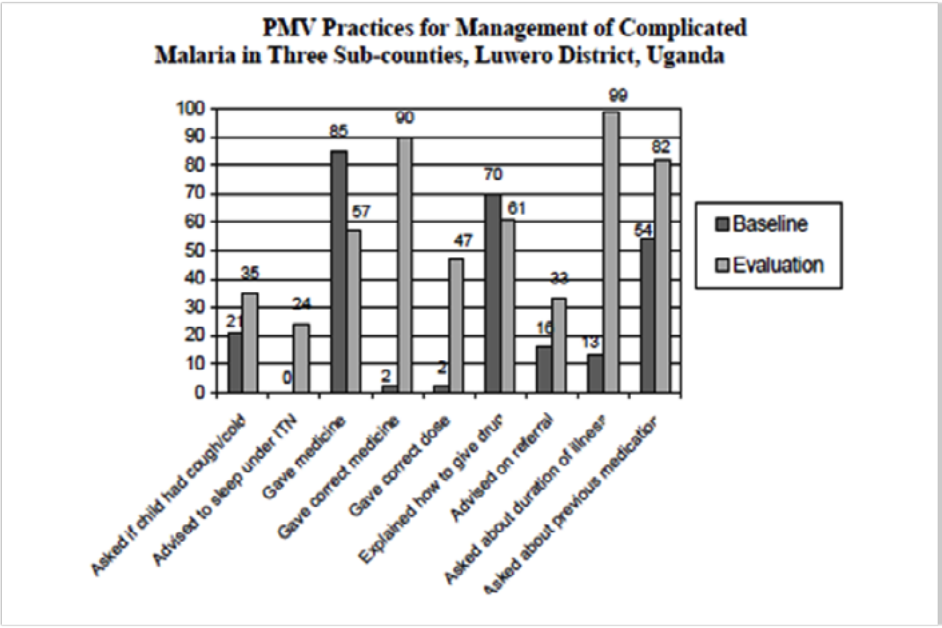




**Figure 1. PMV practices for management of simple and complicated malaria in three sub-counties in Luwero District, Uganda**

*(Source: http://www.basics.org/documents/pdf/ImprovingMalariaMgmtPMVs.pdf)*

## References

1. Greer, G., Akinpelumi, A., Madueke, L., et al. Improving Management of Childhood Malaria in Nigeria and Uganda by Improving Practices of Patent Medicine Vendors [Internet]. 2004 [cited 2012 Sep 25]; available from: http://www.basics.org/documents/pdf/ImprovingMalariaMgmtPMVs.pdf

2. Tawfik, Y., Northrup, R., Prysor-Jones, S. Utilizing the Potential of Formal and Informal Private Practitioners in Child Survival: Situation Analysis and Summary of Promising Interventions. [Internet]. 2002; available from: http://pdf.usaid.gov/pdf_docs/PNACP202.pdf
In July 2011, FHI 360 acquired the programs, expertise and assets of AED

3. Greer, G. Forum on Engaging the Private Sector in Child Health [Internet]. 2007 [cited 2012 Sep 25]; available from: http://pdf.usaid.gov/pdf_docs/PNADJ836.pdf

4. John Snow Inc., Magumba, G., Bankunda, A., Tifft, S. Improving Child Health Care Management Skills of Private Providers - Practical Experience from Uganda [Internet]. 2006 [cited 2012 Sep 25]; available from: http://uphold.jsi.com/Docs/Resources/Conferences/improve_child_health_priv_providers.pdf

## Annex 4-1.5. Reducing the Use of Injections and Antibiotics in Public Health Centers in Gunungkidul, Indonesia

| | |
|---|---|
| Brief program description | This innovative intervention developed by a district health team in Indonesia illustrates a useful model for engaging public sector health facility staff in better treatment of childhood illnesses. The approach was built on developing simple tools for routine assessment of practices as a basis for continuous quality improvement. |
| Country | Indonesia, Gunungkidul |
| Year | 1992-1993 |
| Target disease(s) | Common acute illnesses (malaria, diarrhea, and ARIs) |
| Target population(s) | • Children and adults |
| Target sector(s) | • Public sector |
| Approach(es) | • Persuasive<br>• Managerial |
| Intervention key components | • A monthly survey of 30 cases at each health facility to measure 3 target prescribing indicators (injection use, antibiotic use, and polypharmacy)<br>• Monthly observations by health center managers of clinical encounters by paramedics and interviews with patients<br>• Monthly discussions with all staff to discuss solutions to problems uncovered<br>• Routine reports to the district health office that were discussed at monthly meetings with health center managers |
| Lessons learned | • Public health provider and patients may not discuss or understand each other's expectations during a clinical encounter, which can lead to over-treatment.<br>• Monthly monitoring of processes of care and discussions about simple treatment parameters can induce rapid and substantial changes in clinical practice.<br>• In a positive rather than a punitive supervisory environment, health workers are willing to look critically at their own practices to improve treatment.<br>• Contrary to the fears of health staff, reducing the number of medications per prescription or shifting away from injections did not decrease attendance at health centers. |

### Problem Identification

Health centers in Indonesia provide curative and preventive services and foster community participation in health issues. Each center is staffed by one or two physicians and eight to ten paramedics, but because of heavy physician workload and administrative responsibilities, most patients visiting health centers for curative care are treated by paramedics, who are not formally trained to diagnosis or treat illness. Medicines are provided free, but there are periodic shortages as resources are limited and prices are continually increasing. Patients expect to receive many medicines, and excessive use of injections and antibiotics is common.

### Exploring Causes

The district health team realized that it was necessary to control medicines use to address these problems. Working with the Indonesia core group of the International Network for Rational Use of Drugs (INRUD), they conducted a series of activities to learn about the causes of drug misuse and to test new management systems to improve the situation (figure 1[1]).

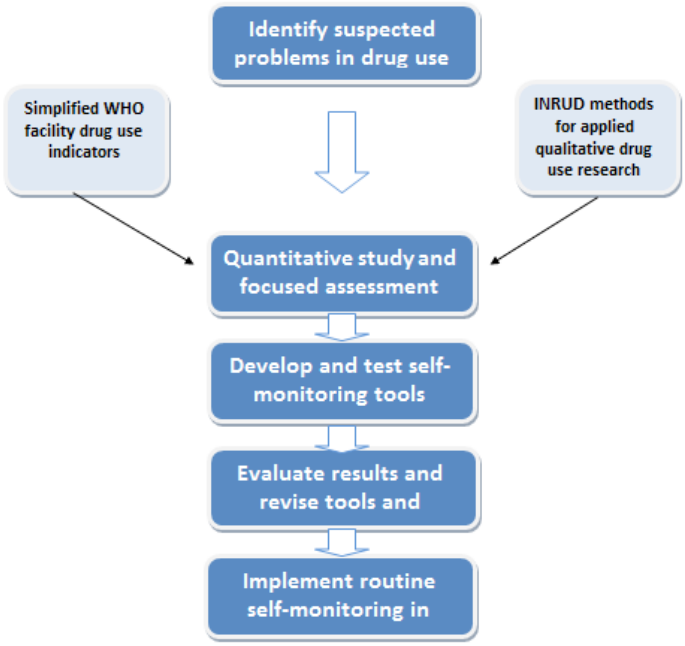



**Figure 1. Conceptual framework of problem-solving process in Gunungkidul**

The district team first conducted a simplified medicine use indicator survey by using methods developed by INRUD and WHO.

The survey confirmed that health center staff did not follow treatment guidelines, with very high use of injections (76 percent of patients), antibiotics (63 percent), and extensive polypharmacy (4.2 medicines per patient).

Following the survey, the team first tested innovative research involving interactive group discussions between health workers and community members to reduce injection use in 12 health centers. At three months, there was a significant decrease in injection use. More importantly, however, the experience of this research project convinced the team that broader changes in behavior were possible, based on self-learning and active participation among health staff.

## Designing an Intervention[2,3]

**Context:** Following its initial success, the district team held a session to brainstorm about the factors responsible for over-prescribing. They raised an extensive list of 37 possible factors that became the basis for a focused study using four exploratory methods: in-depth interviews, observations, focus groups, and questionnaires. The study showed that paramedics were unsure of diagnoses because patient complaints were too varied. Doctors felt that treatment guidelines were only useful for paramedics, but paramedics did not find them helpful. Patients relied on prescribers to decide which medicines they needed; they did not demand injections, but were disappointed when they did not receive them. Health staff was motivated to improve their practice.

**Target group**: Paramedics who provide curative care to patients in primary health care centers and sub-centers and their physician managers.

**Design and content of the intervention:** After an initial workshop at the district health office to introduce WHO drug use indicators to district personnel, the district team developed a self-monitoring approach involving a monthly survey of 30 cases at each health center and sub-center to measure three target prescribing indicators; monthly observations by the health center manager of clinical encounters by paramedics; and monthly interviews with patients. Using these data, the monitoring team held monthly discussions with all staff to discuss solutions to problems. After this discussion, monitoring teams sent the data and a monthly report to the District Health Office. The district team did not set specific health center targets, but they did exert pressure to submit reports on time before a monthly meeting with health center managers.

**Messages, materials, and interactions:** Simple tools and methods for self-monitoring; a graphic display for monitoring progress toward goals in the three target prescribing indicators; and monthly local meetings of health center staff and monthly district meetings of health center managers.

**Credibility:** Active positive support by the district health team and use of tools and methods promoted by WHO and INRUD Indonesia lent credibility to use of the self-monitoring approach.

## Implementation

Four health centers were identified as pilot sites to field-test the self-monitoring approach. A team of doctors and paramedics at each center was trained to use the tools in a two-day session conducted by the district team. After three months, each health center presented its results and reviewed experiences at another workshop with staff from all 29 health centers in the district. The district team then extended the self-monitoring system to all health centers in the district, using a similar training approach and with support from staff in the pilot centers.

## Monitoring and Evaluation

After nine months, polypharmacy had been reduced by 26 percent (from 4.2 to 3.1 medicines per patient), antibiotic use by 51 percent (from 63 percent of patients to 31 percent), and injection use by 74 percent (from 76 percent to 20 percent of patients). Furthermore, health centers submitted orders for fewer medicines during the next planning year and reduced the average number of different items ordered from 120 to 100, a reduction of 17 percent. Despite these changes in practice, attendance at health centers remained constant and observations of clinical episodes showed that consultation time actually increased. Interviews with health workers showed more positive attitudes towards the use of standard treatments, willingness to improve skills and knowledge, and increased communication among physicians, paramedics, dispensers, and the district team. Three years after implementation, an evaluation demonstrated that the self-monitoring approach in Gunungkidul district showed continued positive effects.

## References

1. Santoso, B. From Research to Action: the Gunungkidul Experience. Essential Drugs Monitor [Internet] 1995;(020). Available from: http://apps.who.int/medicinedocs/en/d/Js16517e/2.5.html

2. Hadiyono, J. E. P., Suryawati, S., Danu, S. S., Sunartono, Santoso, B. Interactional Group Discussion: Results of a Controlled Trial Using a Behavioral Intervention to Reduce the Use of Injections in Public Health Facilities. *Social Science & Medicine* 1996;42(8):1177–83. Available from: http://www.ncbi.nlm.nih.gov/pubmed/8737436

3. Sunartono. Impact Evaluation of Self-Monitoring of Drug Indicators in Health Facilities [Internet]. 1997 [cited 2012 Sep 25]; available from: http://archives.who.int/icium/icium1997/posters/2D3_TXT.html

## Annex 4-1.6. Persuasive Training (Vendor to Vendor) to Improve Treatment of Malaria in Retail Drug Shops in Kenya

| | |
|---|---|
| Brief program description | This low-cost approach, called vendor-to-vendor (V2V) education, involved training and equipping wholesalers and mobile vendors with customized job aids to distribute to small rural and peri-urban retailers. The one-year, V2V intervention was followed by a community intervention entitled neighbor-to-neighbor (N2N) that distributed brochures through a village-level cascade and made use of song contests to pass malaria messages to the local population. |
| Country | Kenya |
| Year | 2000-2003 |
| Target disease(s) | Malaria |
| Target population(s) | • Children and adults |
| Target sector(s) | • Private sector |
| Approach(es) | • Persuasive<br>• Managerial |
| Intervention key components | • Focus group discussions with counter attendants to decide how to design the intervention and to identify the key messages<br>• Measurement of existing practices at retail medicine shops using simulated customers<br>• A three-hour training program for wholesalers and a one-day training program for mobile medicine vendors and counter attendants in retail shops<br>• Brief face-to-face persuasive educational sessions by mobile wholesaler vendors with print materials for both counter attendants and customers |
| Lessons learned | • Short-term improvements in shop keepers' knowledge and behavior are possible, but the gap between actual and desired performance is still large<br>• V2V intervention is a feasible district-level strategy to improve practice at shops/kiosks, but other strategies may be needed to influence pharmacies and clinics<br>• Enforcement of standards in packaging and product quality is needed at the national level<br>• The community-focused component of the intervention is an essential complement to the intervention targeting staff at medicine outlets |

### Problem Identification

Pharmaceutical supply system data and surveys of private drug outlets indicated that use of antimalarials was not compliant with the national guidelines.

### Exploring Causes

In sub-Saharan Africa, 50–80 percent of people first visit private drug outlets for malaria treatment, but the level of knowledge at private clinics, pharmacies, and shops is often low. Numerous unregistered private outlets are often outside of a government's capacity to monitor and regulate.

## Designing the Intervention[1, 2,3,4]

**Context:** The purpose was to test whether a low-cost outreach education program managed by a district health team could increase knowledge about and compliance with national malaria treatment guidelines in private drug outlets. The program included brief face-to-face small group educational sessions for counter attendants, printed job aids to use during the dispensing process, and targeted educational materials with complementary messages for customers. At the time of the intervention in Bungoma, Kenya, sulfadoxine-pyrimethamine (SP) was the first-line antimalarial, but only five brands were government approved as a result of quality testing.

**Target group:** The intervention targeted wholesalers, mobile drug vendors, and counter attendants in retail shops.

**Intervention activities:**

- Design and production of a shopkeeper job aid and a customer awareness aid
- Orientation of wholesalers (3 hours)
- Training and equipping of mobile drug vendors and retail shop counter attendants (1 day)
- Contacts between drug vendors and counter attendants with customers at the point of sale involving the use of job aids

This intervention was followed in 2001 and 2002 by a community intervention called N2N that distributed brochures through a village-level cascade and made use of song contests to pass malaria messages to the local population.

**Messages and materials (job aids):**

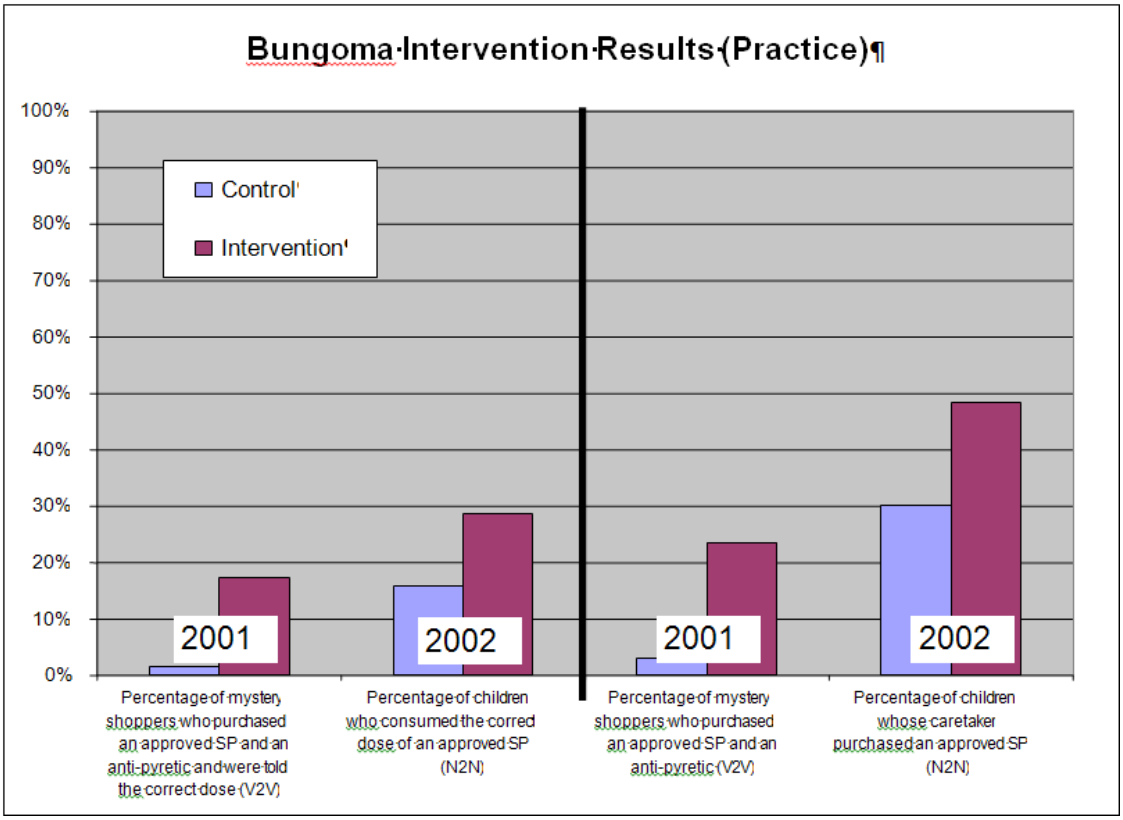
- Shop poster that described the new malaria guidelines, provided a treatment schedule, and gave advice on the appropriate actions to take in various scenarios
- Poster showing the five approved malaria medicines and advising customers to ask for them
- T-shirts and hats promoting the key intervention messages

## Results

- A first assessment at six months found a 29 percent increase in appropriate (correct medicine, correct dose) sales of SP by retailers and a second assessment one year later revealed a further small increase in appropriate treatment for malaria in both adults and children
- Percentage of shops stocking SP tripled after the intervention, from 19 percent to 66 percent
- Outlets receiving job aids had significantly better malaria knowledge and prescribing practices than those that did not
- Community members in the intervention area were twice as likely to obtain the correct dose of SP as those in a comparison area and three times as likely to have correct knowledge of antimalarial medicines
- Community members exposed to both songs and brochures had better knowledge and practices than those exposed only to brochures

## Monitoring and Evaluation

Simulated customers were carried out at baseline and six months after the training of the wholesale agents to evaluate the V2V intervention. A household survey was also conducted after about six months. The N2N intervention was evaluated a year later, but the long-term sustainability of this intervention has not been evaluated.




## References

1. Tavrow, P., Shabahang, J., Makama, S. Vendor-to-Vendor Education to Improve Malaria Treatment by Private Drug Outlets in Bungoma District, Kenya. *Malar. J.* 2003;2:10. Available from: http://www.malariajournal.com/content/2/1/10

2. Tavrow, P., Shabahang, J., Makama, S. 2002 Vendor-to-Vendor Education to Improve Malaria Treatment by Drug Outlets in Kenya | USAID Health Care Improvement Portal [Internet]. [cited 2012 Apr 22]; available from: http://pdf.usaid.gov/pdf_docs/Pnacp630.pdf
The publication was developed by the Center for Human Services (CHS), the non-profit affiliate of University Research Co., LLC (URC), through the Quality Assurance Project (QAP II) under Contract Number HRN-C-00-96-90013 from the United States Agency for International Development (USAID)

3. Tavrow, P. Using Job Aids to Improve Malaria Treatment in Kenya's Private Drug Outlets [Internet]. 2001; available from: https://www.usaidassist.org/sites/assist/files/tavrow_presentation.pdf

4. Improving Dispensing Practices of Private Sector Drug Vendors in Bungoma District, Kenya Presentation made at the 4th Global Partners meeting on malaria 2001, Washington DC. QAP/AMREF

## Annex 4-1.7. Price Subsidies, Diagnostic Tests, and Malaria Treatment in Western Kenya

| | |
|---|---|
| Brief program description | This innovative program evaluated the effects of subsidies for artemisinin-based combination therapy (ACT) alone versus subsidies for ACT and rapid diagnostic tests (RDTs) in drug shops on access and use of ACTs. |
| Country | Busia, Mumias, and Samia districts in Western Kenya |
| Year | 2009 |
| Target disease(s) | Malaria |
| Target population(s) | • Children and adults |
| Target sector(s) | • Private sector |
| Approach(es) | • Educational<br>• Economic |
| Intervention key components | • All households in the rural catchment areas for the target drug shops received information about ACTs<br>• Groups of households were given vouchers of different types and amounts (to imitate different degrees of subsidy) for use at local shops<br>▪ Vouchers for non-subsidized ACTs<br>▪ Vouchers for subsidized ACTs in three different amounts<br>▪ Vouchers for subsidized ACTs and RDTs in three different amounts<br>• Trained enumerators were posted at the shop to sell ACTs and administer the RDTs |
| Lessons Learned | • Subsidies significantly increased access to ACTs, especially for children and mostly among households with low socio-economic status.<br>• Households who received ACT subsidies shifted from "no care" or care in public health centers to care in private drug shops.<br>• ACT access increased by 59 percent when the amount of ACT subsidy was over 80 percent.<br>• In the group who received ACT vouchers, only 56 percent of those who bought ACTs at the drug shop tested positive for malaria.<br>• Adding subsidized RDTs to the vouchers doubled the rate at which malaria was diagnosed from 21.6 percent in the control group to 42.6 percent in the ACT + RDT subsidy group.<br>• RDT subsidies can improve targeting of ACT treatment.<br>• Some of an RDT subsidy could be financed by a lower ACT subsidy. |

### Problem Identification

Subsidies aim to increase timely access to expensive ACTs, the current recommended treatment for malaria. However, not everyone benefits from subsidies to the same extent. One problem in countries that take advantage of price subsidies offered through the Affordable Medicines Facility for Malaria (AMFm) is that demand for ACTs will increase not only among patients with malaria infection, but also among those with fever of other origins. Inappropriate non-targeted use would waste the subsidy, encourage cost-ineffective treatment choices by consumers, and speed the growth of resistance. It is critical to find strategies to balance increased affordability and appropriate use of ACTs. This project was designed prior to the roll-out of AMFm to model the effect of price subsidies on testing and treatment for malaria in rural Kenya.

### Exploring Causes

Previous research had shown that drug shop customers are sensitive to antimalarial product prices. The intervention aimed to develop approaches to increase access to ACTs for malaria, while minimizing clinically and economically unnecessary overuse to treat non-malarial fevers. Several different levels of subsidies and encouraging the use of RDTs to inform decisions about buying ACTs were explored.

## Designing an Intervention[1,2,3,4]

**Target group**: The intervention targeted rural drug shops and households in Western Kenya. The four participating drug shops were chosen based on several criteria, including distance from shops participating in other public health interventions, shop owner qualifications, length of time the shop had been in business, and number of daily customers. All households in the catchment areas of these drug shops were included in the intervention.

**Activities:** All target households were visited and provided with information about ACTs. Three randomly selected groups of households received either (1) voucher cards to purchase non-subsidized ACTs at participating shops at the local market price; (2) voucher cards allowing customers to purchase ACTs with three levels of subsidy (80, 88, and 92 percent); or (3) voucher cards allowing customers to purchase ACTs with the same three subsidy levels as well as RDTs with either 100 percent or 85 percent subsidy. Trained staff members were posted at drug shops to process and record details of all study-related transactions, including patient characteristics, symptoms, medicines purchased, and RDT results. If the client redeeming an RDT voucher in the shop was not the actual patient needing the test, one of the two study officers accompanied the client back home to perform the test on the patient.

**Messages and materials:** In addition to the vouchers, the program had an educational component. When distributing the vouchers to households, enumerators explained the value of RDTs to diagnose malaria and the importance of ACT treatment for confirmed malaria.

**Credibility:** The intervention was designed by researchers from several academic institutions and supported by the Kenya MoH, KEMRI-Wellcome Trust Collaborative, Kenya CDC, PSI-Kenya, the Clinton Health Access Initiative, and Novartis Pharmaceuticals.

## Implementation

Households were randomly assigned to one of three groups. Two groups received ACT vouchers only, and one received both ACT and RDT vouchers. A baseline survey was administered to the female head of each household; before concluding their visit, enumerators explained that ACTs are the most effective type of antimalarials and gave two vouchers for ACTs. The vouchers stated the drug shop at which the products could be purchased and did not have an expiration date to prevent their use in the absence of an illness episode. One group of households received "no-subsidy" vouchers to purchase unsubsidized ACTs at market price. Two groups of households received "subsidy" vouchers to purchase subsidized ACTs. In one of these two subsidy groups, enumerators also distributed RDT vouchers after explaining what RDTs are for and how they work.

Throughout the study, all shop transactions in each of the four participating drug shops were captured by trained enumerators. Recorded data included medicines bought, patient characteristics, and true malaria status in case an RDT was administered.

About four months after the distribution of vouchers, a survey was administered to all households asking respondents to recall all episodes of illness and collecting information about symptoms, care seeking behavior, types of malaria tests taken (if any), and medicines purchased.

## Monitoring and Evaluation

Evaluation was embedded throughout the program. The evaluation components included baseline and follow-up household surveys to collect data on illness episodes and treatment, as well as short customer surveys at drug shops when customers purchased antimalarial treatment.

Key results included the following:

- Subsidies like those envisioned under AMFm significantly increased access to and use of ACTs, especially for children and mostly among households with low socio-economic status.

- Households who received ACT subsidies shifted from not seeking care or seeking care in public health centers to care in private drug shops, which studies in other settings have shown to be more convenient and accessible than public health centers.
- ACT access increased by 59 percent when the ACT subsidy was over 80 percent.
- In the group who received ACT-only vouchers, only 56 percent of those who bought ACTs at the drug shop tested positive for malaria, indicating the potential for subsidies to encourage inappropriate use.
- Adding subsidized RDTs to the vouchers doubled the rate at which malaria was tested from 21.6 percent in the control group to 42.6 percent in the ACT + RDT subsidy group.
- RDT subsidy could improve targeting, and results suggest that some of the costs of an RDT subsidy could be financed by a lower ACT subsidy.

## References

1. Cohen, J., Dupas, P., Schaner, S. G. Price Subsidies, Diagnostic Tests, and Targeting of Malaria Treatment: Evidence from a Randomized Controlled Trial [Internet]. National Bureau of Economic Research; 2012 [cited 2013 Mar 2]. Available from: http://www.nber.org/papers/w17943

2. Cohen, J. Price Subsidies, Diagnostic Tests and Targeting of Malaria Treatment [Internet]. 2011 [cited 2012 Sep 25]; available from: http://siteresources.worldbank.org/INTDEVIMPEVAINI/Resources/3998199-1285617002143/7430173-1328726021252/Jessica_Cohen_presentation.pdf

3. Cohen, J. Price Subsidies, Diagnostic Tests, and Targeting of Malaria Treatment: Evidence from a Randomized Controlled Trial [Internet]. 2015; America Economic Review, 105(2) : 609-645; available from: http://dx.doi.org/10.1257/aer.20130267 [cited 2015 28 Aug] or http://www.stanford.edu/~pdupas/CohenDupasSchaner_ACT.pdf [cited 2015 28 Aug]

4. Poverty Action Lab. A Balancing Act: Subsidizing Drugs and Diagnostics for Malaria [Internet]. 2012 [cited 2012 Sep 25]; available from: http://www.povertyactionlab.org/publication/balancing-act

## Annex 4-1.8. Developing Accredited Drug Dispensing Outlets in Tanzania

| | |
|---|---|
| Brief program description | The initial Accredited Drug Dispensing Outlet (ADDO) program was a donor-supported initiative led by the Tanzanian Food and Drug Authority (TFDA) to train and license small, privately operated retail outlets in rural and poor areas to sell a set list of essential medicines, including selected prescription drugs. The TFDA has now scaled the program up to national level. |
| Country | Tanzania |
| Year | 2003 to present |
| Target disease(s) | Common acute illnesses |
| Target population(s) | • Children and adults |
| Target sector(s) | • Private sector |
| Approach(es) | • Managerial<br>• Educational<br>• Economic |
| Intervention key components | 1. Participatory approach involved all key stakeholders from program inception, resulting in a strong and broad-based support by national and local authorities as well as professional and commercial associations.<br>2. District and ward inspectors conducted mapping and preliminary pre-accreditation inspections of community-based drug shops to assess local needs and building stewardship and governance capacity.<br>3. Provider accreditation was the responsibility of TFDA. This program was based on the Ministry of Health's (MoH) standards and regulations and in accordance with the goals of the National Health Policy and Health Sector Reforms Program.<br>4. ADDO owners receive training in business skills, documentation, recordkeeping and commercial incentives, such as access to business loans. Once accredited, ADDOs can sell a short list of essential medicines established by MoH.<br>5. Concurrent public education and marketing efforts (such as posters, flyers, billboards, and radio spots) develop customer awareness about quality of medicines and health care services.<br>6. To ensure the availability and quality of products distributed, as well as ADDO compliance with recordkeeping requirements, shop operations are supervised by local health authority inspectors conducting regular ADDO monitoring and evaluation inspections. |
| Lessons learned | • A participatory approach to design and implementation has garnered broad-based and long-term support from all public and private stakeholders and led to national scale-up of the ADDO model.<br>• Importance of key government stakeholders' flexibility and their willingness to take risks on the program.<br>• Importance of understanding the motivations and problems of the shop owners and incorporating their requirements into basic program design.<br>• Flexibility of funders and project managers allowed adjusting the program's design, work plans, and budgets swiftly in response to new understanding, insights, and problems as they arose.<br>• The wide acceptance of the final approved standards of operations for the ADDOS was a result of the participatory process—all groups' needs were taken seriously and all groups were prepared to compromise to accommodate others' interests. |

## Problem Identification

Many people in rural Tanzania seek health care and medicines from retail drug shops for reasons such as convenience. Historically, the TFDA authorized these shops (*duka la dawa baridi*) to provide non-prescription medicines. However, a 2001 assessment showed that shop attendants were generally unqualified and untrained, and many of them sold prescription drugs illegally. In response, the Strategies for Enhancing Access to Medicines (SEAM) Program, funded by the Bill & Melinda Gates Foundation, collaborated with TFDA to develop and launch the ADDO program in 2003 in areas where few or no registered pharmacies existed, with the goal to increase access to affordable, quality medicines and to improve pharmaceutical services in retail drug outlets.

## Designing an Intervention[1,2,3,4,5,6]

**Target group:** Initially, the program targeted rural drug shops in the Ruvuma region. Before selecting participating drug shops, district and ward inspectors conducted mapping and preliminary pre-accreditation inspections of *duka la dawa baridi* to assess local needs. The selection process built stewardship and governance capacity at the local and central levels.

**Activities:**
Major activities focused on improving local regulatory capacity in order to:

- Develop TFDA accreditation rules based on MoH/TFDA standards and regulations
- Train and supervise dispensing staff
- Develop business skills of ADDO owners and provide commercial incentives (e.g., access to loans, authorization to sell some prescription medicines)
- Perform marketing campaigns to increase public awareness about the importance of medicines quality and treatment compliance
- Allow legal access to a limited list of basic, high-quality prescription and non-prescription essential medicines in ADDOs

**Credibility:** The intervention was designed by staff from the Tanzania MoH, TFDA, Management Sciences for Health (MSH), and several academic institutions.

## Implementation

After gaining support from key stakeholders, TFDA and the government of the Ruvuma region, in collaboration with MSH, implemented the pilot ADDO initiative in 2003. Drug shop accreditation was granted on achievement and maintenance of a set of pre-established standards. Accredited shops received commercial incentives combined with decentralized regulatory oversight. The quality of both the ADDO products and services was ensured through routine monitoring by district/local government and community structures.

## Monitoring and Evaluation

An assessment of the ADDO Pilot Program conducted by the TFDA indicated substantial changes in medicines supply and use in the Ruvuma intervention region compared to the Singida comparison region. For example (figure below), rates of antibiotic dispensing for simulated customers presenting a case of upper respiratory tract infections were 14 percent in Ruvuma compared to 25 percent in Singida and 39 percent in a national study several years earlier. A group of MoH, regional government, and local government representatives concluded that the project had contributed to improving access to essential medicines and rational medicine use. Following this evaluation, MoH and TFDA decided to roll out the ADDO program to all regions of the country, with a focus on addressing challenges related to training and continuing education, supervision, and regulation as well as ensuring the full commitment of all stakeholders in each region.

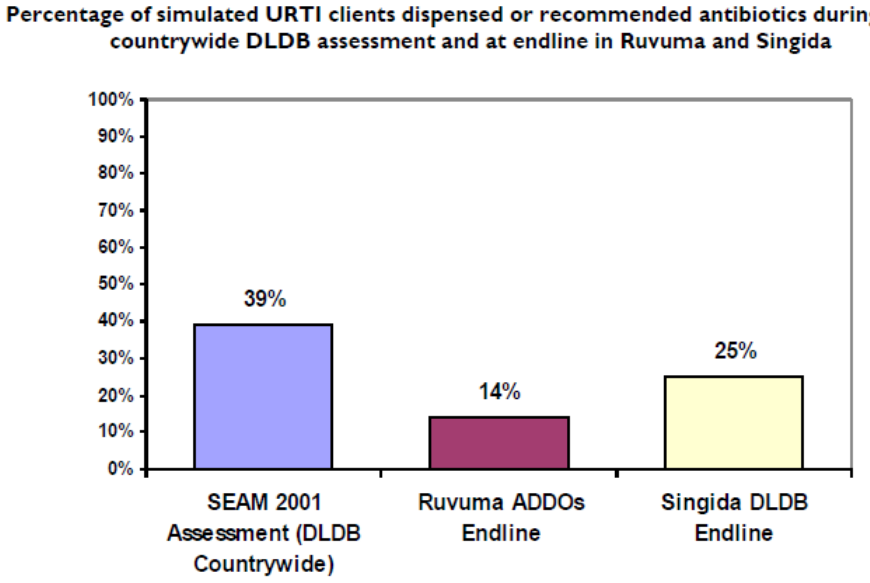



**Figure 1. Percentage of simulated URTI clients dispensed or recommended antibiotics during 2001[1]**

The objective of the scale-up was to build a fully regulated, comprehensive, private sector pharmaceutical services system that improves access and availability of quality medicines and services to the population, at all levels and with specific anticipated benefits:

- Improved basic access to essential prescription and nonprescription medicines and pharmacy services in the retail sector
- Expanded legitimate availability of important groups of prescription medicines in a way that reduces potential inappropriate use
- Economic development (e.g., old shops improved, new shops opened, income for owners and sellers, wholesaling market and infrastructure)
- Stricter regulatory control of the private pharmaceutical sector without jeopardizing essential services
- Less criminal activity in the pharmaceutical market
- New avenues for public health interventions (e.g., artemisinin-based combination therapy for malaria, child health, HIV and AIDS programs)
- Strengthened local government, better links between the central and local governments, and empowered grass roots institutions

The government of Tanzania has been implementing the scaled-up ADDO program, which has now rolled out in 18 of 21 regions with over 4,000 ADDOs established and 9,000 dispensers trained. A formal evaluation of the scale-up has confirmed the wide-range positive impact of ADDOs in rural areas, although adequate supervision remains a continuing challenge. Building on the achievements of the pilot and scale-up programs, the current Sustainable Drug Seller Initiative (SDSI) intervention focuses on ensuring sustainability of the ADDO model in Tanzania and several other countries.

## References

1. Center for Pharmaceutical Management. Accredited Drug Dispensing Outlets in Tanzania Strategies for Enhancing Access to Medicines Program [Internet]. Arlington, VA: Management Sciences for Health; 2008. Available from: http://projects.msh.org/seam/reports/TANZANIA_Final_ADDO.pdf

2. Management Sciences for Health. Drug Seller Initiative Toolkit [Internet]. 2011 [cited 2012 Jan 25]; available from: http://www.drugsellerinitiatives.org/components/

3. Management Sciences for Health. East Africa Drug Seller Initiative (EADSI) Evaluation Report [Internet]. 2011. Available from: http://www.drugsellerinitiatives.org/publication/altview/east-africa-drug-seller-initiative-eadsi-evaluation-report/PDF

4. Rutta, E., Kibassa, B., McKinnon, B., et al. Increasing Access to Subsidized Artemisinin-Based Combination Therapy through Accredited Drug Dispensing Outlets in Tanzania. *Health Res. Policy Syst.* 2011;9:22. Available from: http://www.health-policy-systems.com/content/9/1/22

5. Management Sciences for Health. Sustainable Drug Seller Initiatives [Internet]. 2011 [cited 2012 Nov 5]; available from: http://www.msh.org/our-work/projects/sustainable-drug-seller-initiatives

6. Tanzania Food and Drugs Authority. Guidelines for Establishing and Operating Accredited Drug Dispensing Outlets [Internet]. 2009. Available from: http://www.drugsellerinitiatives.org/publication/altview/guidelines-for-establishing-and-operating-accredited-drug-dispensing-outlets/PDF

## Annex 4-1.9. Pilot SMS-For-Life Project in Tanzania

| | |
|---|---|
| Brief program description | This approach uses cell phone text messages and electronic mapping technology to provide comprehensive and accurate stock counts of antimalarials from health facilities to district managers to reduce stock-outs, increase availability of essential antimalarials in public health facilities, and reduce the number of deaths from malaria. |
| Country | Tanzania |
| Year | 2009 to present |
| Target disease(s) | Malaria |
| Target populations | • Children and adults |
| Target sector(s) | • Public sector |
| Approach(es) | • Managerial |
| Intervention key components | A supply monitoring system was built under the leadership of a public-private partnership. The system focused on four different dosage packs of artemether-lumefantrine (AL) and quinine injectable. Stock data are captured through the SMS stock count messages sent from health facilities. Weekly results are available through a secure reporting website with restricted access via the Internet on a computer, Blackberry, or other smart mobile phone. |
| Lessons learned | • Effectiveness of a public-private partnership enlisting the right partners<br>• Importance of including the intervention in government mainstream programs<br>• Importance of effective training sessions for health facility workers<br>• Increased visibility of weekly stock levels of key antimalarial medicines at the health-facility level triggers action to eliminate and/or reduce stock-outs<br>• State-of-the-art data gathering infrastructure via simple tools such as SMS and mobile telephones can be built in remote locations of sub-Saharan Africa to disseminate information, induce behavior changes, and produce positive results |

### Problem Identification

At the time of the pilot study, huge supply chain problems made it difficult to get malaria medicines to patients in many African countries. Barriers included:

- Frequent stock-outs at rural health facilities, i.e., at the point of care where patients can get free drugs rather than having to pay for them at pharmacies or private clinics
- Zero visibility of medicine stock levels in health facilities to district management
- Extreme difficulty in forecasting demand, resulting in emergency orders that require ramped up production and transportation of the drug by air
- Inconsistent reporting of consumption and sporadic, paper-based ordering
- Very poor IT and communications infrastructure, particularly in rural areas, although mobile coverage is growing

### Designing an Intervention[1,2,3]

**Target group**:
Three rural districts (Lindi Rural, Ulanga, and Kigoma Rural) were selected by the National Malaria Control Programme according to the following criteria:

- In different regions of the country and supplied by different Zonal Stores
- Provide a broadly representative sample of the entire country, yet differ in terms of level of health service delivery and access
- Malaria endemic with malaria the most common cause of death
- Not involved in other pilot projects

The three districts cover a total population of 1.2 million.

**Activities:** Training, a key component of the intervention, was provided at three levels:

- National level: NMCP, Medical Stores Department, and additional staff attended a half-day training session explaining the project objectives, use of the reporting system, and action to be taken based on stock count information provided.
- District level: a half-day training session was provided for the district medical officer (DMO), malaria focal person, district pharmacist, and zonal store representative for each district. Training covered use of the reporting system, action to be taken based on stock count information provided, and education and assistance for health facility workers.
- Health facility level: the NMCP in-country project leader trained health facility workers within each district in the local language during a half-day training session. The session included registration of personal mobile telephone numbers; the procedure for counting stock; composition of the SMS stock count messages; live simulations of counting, composing and sending SMS messages; and best practices for stock management and storage of antimalarials.

A strong district-level management system was established. In each district participating in the SMS for Life pilot program, a person was appointed by the DMO to redistribute medicines in response to stock-outs identified by the SMS for Life system. Redistribution could be undertaken by telephoning health facilities with stock-outs to inform them of excess stock in a neighboring health facility or by contacting the malarial focal person in the district to request that they move stock from a health facility with a high stock level to a neighboring facility.

**Credibility:** Innovative public-private partnership led by Novartis and supported by the Tanzanian Ministry of Health and Social Welfare, IBM, Medicines for Malaria Venture (MMV), the Swiss Agency for Development and Cooperation (SDC), Vodacom, and Vodafone. The project came under the umbrella of the global Roll Back Malaria Partnership.

## Implementation

Vodafone and its partner Matssoft built an SMS management tool and a web-based reporting tool and tested them during the SMS for Life pilot implementation phase.

The SMS management tool is an SMS application that stores a single registered mobile telephone number for one healthcare worker at each health facility. Once a week, a stock request was sent by SMS to each of these telephone numbers. Stock messages are sent back by using a free short code number at zero cost to the healthcare worker (i.e., telephones do not need to have credit to reply). A standard message format is used to capture stock quantities of AL and quinine, with formatting errors handled through follow-up SMS messages to the facility.

The web-based reporting tool is a secure website requiring unique user identification and password. Access is provided to the DMO and his/her staff in each participating district, the relevant regional medical officers and their staffs, the project team, the NMCP, and the Medical Stores Department, including the Zonal Stores affiliated with each district. The website provides (a) current and historical data on AL and quinine injectable stock levels at the health facility and district level; (b) Google mapping of district health facilities with stock level overlays and stock-out alerts; (c) SMS messaging statistics, e.g. errors, received messages; and (d) usage statistics.

## Monitoring and Evaluation

An evaluation of the six-month pilot program was conducted in 3 districts, covering 229 villages and a population of 1.2 million people. It showed impressive results:

- Overall stock-out rates for antimalarial products included in the program were reduced from 79 percent to less than 26 percent in the three districts.
- At the beginning of the pilot, 26 percent of the facilities had no dose form of AL in stock; by the end of the pilot, this figure had been cut to less than 1 percent.

- In all four participating districts, the number of health centers experiencing stock-outs of AL dropped dramatically by week 21 and, in three of the four districts, stock-outs of quinine injectable were also substantially reduced (figure 1).

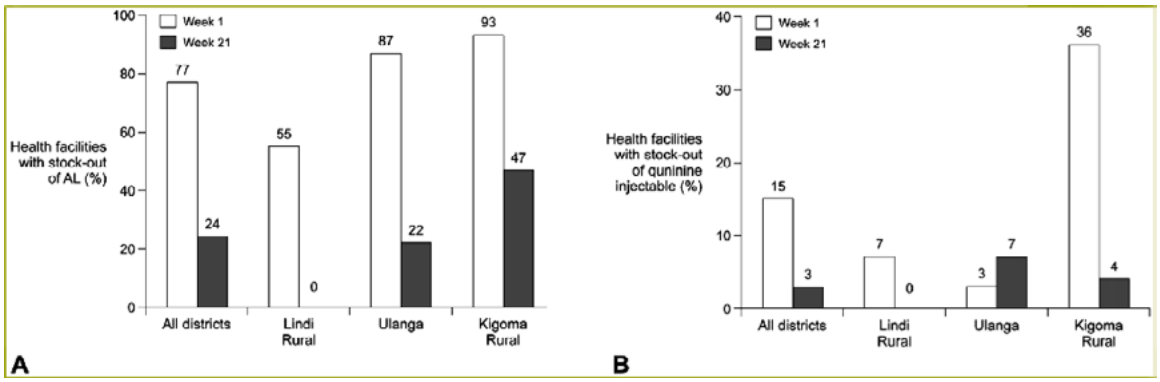



**Figure 1. Proportion of health facilities with stock-out of (A) one type of dosage pack of AL or (B) quinine injectable at the start (week 1) or end (week 21) of the SMS for Life pilot overall and by district[1].**

In light of these results, tracking of tuberculosis and leprosy medicines was added to the system and SMS for Life was rolled out across Tanzania, with over 5,000 facilities trained and reporting on a weekly basis. The intervention is also expanding to other countries. Pilot programs have been implemented in Ghana, Kenya, and Cameroon; in all three countries, the pilots have been successful and the countries are planning full scale-up.

## References

1. Barrington, J., Wereko-Brobby, O., Ward, P., Mwafongo, W., Kungulwe, S. SMS for Life: A Pilot Project to Improve Anti-Malarial Drug Supply Management in Rural Tanzania Using Standard Technology. *Malaria Journal* 2010;9(1):298. Available from: http://www.malariajournal.com/content/9/1/298

2. Moncef, A. SMS for Life (A): A Public-Private Collaboration to Prevent Stock-Outs of Life-Saving Malaria Drugs in Africa [Internet]. 2010; available from: http://malaria.novartis.com/downloads/case-studies/imd-sms-for-life-a.pdf

3. Marchand, D. SMS for Life (B): Living the Implementation Challenges of a Successful Pilot Project [Internet]. 2011; available from: http://malaria.novartis.com/downloads/case-studies/imd-sms-for-life-b.pdf

## Annex 4-1.10. Assessment of Health Systems Supports for Community Case Management of Childhood Illness in Malawi

| | |
|---|---|
| Brief program description | This approach used mixed methods to evaluate the development, delivery, and quality of selected health system supports (supervision, drug supply, and job aids) during the first year of the implementation of a national community case management (CCM) program. |
| Country | Malawi |
| Year | 2008 |
| Target disease(s) | Priority childhood illnesses |
| Target populations | • Children |
| Target sector(s) | • Public sector |
| Evaluation key components | The evaluation used quantitative (cross-sectional survey) and qualitative (in-depth interviews and focus groups) methods to identify factors that constrained and facilitated the efficient delivery of selected health system supports (supervision, drug supply, and job aids) to health services assistants (HSAs) during the early implementation of a national CCM program. |
| Lessons learned | HSAs who participated in the first CCM training sessions often waited up to four months before receiving their initial supply of drugs and first supervision visits. One year after initial training, only 69 percent of HSAs had all essential CCM drugs in stock and only 38 percent reported a CCM supervision visit in the 3 months prior to the survey. In-depth interviews and focus groups indicated that:<br>• Drug supply was constrained by travel distance and stock outs at health facilities<br>• The initial supervision system relied on clinicians with limited availability, which contributed to its inadequacy<br>• The sick child recording form developed specifically for the CCM program proved to be a very useful job aid<br>The evaluation reinforced the importance of moving beyond a train-and deploy strategy towards a broader program development approach encompassing all strategic health system supports required for successful scale-up of interventions. |

### Problem Identification

The implementation of CCM programs remains a major challenge in low-income settings; community-based health workers (CBHWs) providing CCM services often have no previous clinical experience, have low levels of education, are trained for short periods of time, and are posted in isolated settings. That is why supportive supervision, including observation of case management and corrective feedback as well as effective job aids, are particularly important after initial CCM training to ensure high-quality care by CBHWs. For CCM programs to function effectively and achieve their desired impact on child health, adequate supplies of essential drugs to HSAs are also critical.

### Designing the Intervention and Evaluation[1,2,3]

**Target intervention**
In Malawi, HSAs are non-clinician health workers (one HSA for approximately 1,000 people) salaried by the government who are required to have 10 to 12 years of education and to undergo a 10-week basic training. Their main function is to provide health education and sanitation within the communities where they are posted, and they are expected to receive monthly supervision visits.

A national CCM program for childhood illness was initiated in September 2008 in ten Malawi districts. As part of this program, HSAs from the ten districts received six days of training on how to treat uncomplicated cases of malaria, pneumonia, and diarrhea with an algorithm adapted from the Integrated Management of Childhood Illness (IMCI) guidelines. On the last day of training, they were to receive a wooden drug box with a lock and initial drug supplies to start implementing the CCM program right away. Training was led centrally by trained clinicians from district hospitals.

Six of the ten districts with the strongest levels of CCM implementation and representing all three regions of Malawi were selected for inclusion in the evaluation which occurred about one year after CCM implementation began.

**Activities**
Quantitative data on quality of care and the types and levels of health system supports were collected from a random sample of 131 HSAs operating village health clinics through a cross-sectional survey. Study teams visited VHCs to observe sick child consultations, record availability of drugs, and document any supervision visit and drug stock outs that HSAs recalled occurring during the previous 3 months.

A pilot of the qualitative protocol and interview guides, conducted in a district excluded from the study, identified the following relevant personnel in each district: district health officer, IMCI coordinator, administrator, environmental health officer, area environmental health officers, health center clinicians, and senior HSAs. The study team interviewed all six IMCI district coordinators, who had primary responsibility for the CCM program at the district level. In-depth interviews with other relevant personnel were conducted in four of the six districts representing high- and low-performing districts based on preliminary results from the quantitative survey. Focus groups with HSAs were conducted in the same four districts.

Reported constraints for delivering health system supports were analyzed for underlying factors using root cause analysis techniques. Data from different components of the assessment were triangulated to examine the association between qualitative data on health systems strategies and quantitative outcomes.

**Credibility**
This assessment was conducted in partnership with the Ministry of Health (MoH) as part of an independent evaluation led by Johns Hopkins (JH) University. It was approved by the institutional review boards at the JH Bloomberg School of Public Health and the Malawi National Health Sciences Research Committee.

Quantitative data were collected by three-person survey teams, composed of CCM trainers from MoH, who were trained and supervised by JH researchers and MoH managers. To minimize bias in data collection, survey teams were sent to different districts than those in which they worked. Qualitative data were collected by two independent Malawian researchers and a JH researcher, with permission and introductions from MoH officials.

Preliminary results were reviewed with stakeholders at national and district levels, including representatives of district health management teams in all participating districts.

## Evaluation Results

**Training and establishing supports for the CCM program**

- In most districts, the wooden drug box and initial supply of drugs were not delivered to HSAs on the last day of training as planned, but later at their post or at the nearest health center, thus delaying the start of program implementation.
- Supervision and other health system supports were still under development throughout the first year of the CCM program. At the time of the evaluation, the national IMCI office had not yet provided guidance on supervision protocols to districts, such as standardized checklists or guidelines for activities to be conducted during supervision.
- Expectations from the national level were that HSAs should receive a follow-up visit in their communities within six weeks of training, followed by monthly CCM-specific supervision visits. None of the six districts began CCM supervision visits earlier than four months after the first HSAs were trained, and some HSAs did not receive any supervision visit for eight months following training.

**Drug supply at one year**

- One year after training began, 69 percent of HSAs had all essential CCM drugs in stock and only 38 percent of HSAs reported a CCM supervision visit in the three months prior to the survey.
- Results of the qualitative assessment indicated that drug supply was constrained by travel distance and stock outs at health facilities and that the initial supervision system relied on clinicians who were able to spend only limited time away from clinical duties.

**Supervision at one year**

- Survey results demonstrated that supervision visits were far less frequent than advocated by MoH. Every IMCI coordinator interviewed acknowledged that their district was unable to organize monthly supervision visits and most considered this frequency unattainable, given human and financial resource constraints.
- HSAs who received a CCM supervisory visit reported that supervisors only checked records in 83.7 percent of visits, corrected the HSAs' work in 71.4 percent of visits, answered the HSAs' questions in 67.3 percent of visits, provided positive feedback in 63.3 percent of visits, and observed the HSAs performing case management in 36.7 percent of visits.
- Table 1. Challenges and Solutions for Drug Supply and Supervision Identified by Managers and HSAs[3]

## Table 1. Challenges and Solutions for Drug Supply and Supervision Identified by Managers and HSAs[3]

| Challenges identified by participants | Solutions implemented by districts |
|---|---|
| Drug supply | |
| • Distance from HSA posts to health facilities and lack of transport | • Pharmacy technicians deliver drugs to HSAs at their posts<br>• District managers allow HSAs to collect emergency supplies of drugs from the district hospital stores |
| • HSAs working in the catchment areas of health facilities operated by the Christian Health Association of Malawi (CHAM) are unable to collect drugs from their nearest facility due to conflicts in user fee policies | • District managers reach an agreement to reimburse CHAM for drugs supplied to HSAs |
| • Resistance by health center clinicians to supplying drugs to HSAs when they are unaware of the new program | • Orientation sessions held for health center clinicians |
| Supervision | |
| • District-level managers lack time to make supervision visits to HSAs' communities<br>• Managers have difficulty securing vehicles and fuel for supervision visits | • Assistant environmental health officers and Senior HSAs are included in CCM trainings to enable them to conduct CCM supervision |
| • Managers lack clear guidelines on what activities should be conducted during supervision visits | • District managers develop their own supervision checklist, with assistance of partner organizations |

**Use of the Sick Child Recording Form Job Aid**

During the CCM training, HSAs were taught to follow steps on the sick child recording form (SCRF) when conducting assessments and to make treatment decisions using the decision rules presented on the form. The form was developed specifically for the CCM program and a key evaluation finding was to demonstrate how useful the SCRF was as a job aid. In over 90 percent of sick child consultations observed during the Quality of Care survey study, HSAs made reference to a hard copy of the SCRF while managing sick children. HSAs reported that they liked using the SCRF for their CCM work: "I like using the guide line chart because it acts as my sign post. Whenever I am confused, I consult it to know where I am lost and then I am in a better position to do what I am supposed to." Managers also considered the SCRF to be an important contributor to the quality of CCM services. One IMCI coordinator said, "I think HSAs are doing a good job, and basically it is because they are using the SCRF."

Program coordinators in Malawi have begun to use the results of this study to target improvements in health system supports to maximize the impact of CCM toward achieving their child health goals. In the broader policy context, this evaluation reinforces the importance of moving beyond a train-and-deploy strategy toward a broader program-development approach that includes training as one of several health system strategies for successful scale-up. It also underlines the importance of a strong CCM research agenda to ensure that CBHW programs are sustainable and meet their long-term potential.

## References

1. Callaghan-Koru, J. A., Hyder, A. A., George, A., et al. Health Workers' and Managers' Perceptions of the Integrated Community Case Management Program for Childhood Illness in Malawi: The Importance of Expanding Access to Child Health Services. *Am. J. Trop. Med. Hyg.* 2012; 87(5 Suppl):61–8. Available from: http://www.ajtmh.org/content/87/5_Suppl/61.long

2. Cardemil, C. V., Gilroy, K. E., Callaghan-Koru, J. A., Nsona, H., Bryce, J. Comparison of Methods for Assessing Quality of Care for Community Case Management of Sick Children: An Application with Community Health Workers in Malawi. *Am. J. Trop. Med. Hyg.* 2012; 87(5 Suppl):127–36. Available from: http://www.ajtmh.org/content/87/5_Suppl/127.long

3. Callaghan-Koru, J. A., Gilroy, K., Hyder, A. A., et al. Health Systems Supports for Community Case Management of Childhood Illness: Lessons from an Assessment of Early Implementation in Malawi. *BMC Health Services Research* 2013; 13(1):55. Available from: http://www.biomedcentral.com/1472-6963/13/55

## Annex 4-1.11. Evaluation of a universal coverage bed net distribution campaign in four districts in Sofala Province, Mozambique

| | |
|---|---|
| Brief program description | Mozambique developed a novel bed net distribution model to increase coverage, with bed net numbers based on assumptions about household sleeping patterns. The coverage and impact of the campaign using this model was evaluated in four districts in Sofala Province, Mozambique. |
| Country | Mozambique |
| Year | 2009 |
| Target disease(s) | Malaria |
| Target population(s) | • Children and adults |
| Target sector(s) | • Public sector |
| Approach(es) | • Managerial<br>• Educational |
| Intervention key components | • Leaders in the target communities produced lists with the total number of households in their communities, the number of members in each household, and their ages, sex, and relationship with household head.<br>• Locally determined assumptions about sleeping patterns, were used to calculate the expected number of sleeping spaces in each household.<br>• Households then received a number of nets equal to the number of expected sleeping spaces, along with education about their use. |
| Lessons learned | • The campaign using this novel distribution model achieved high coverage, although usage was not uniformly high.<br>• Community-level use of bed nets was significantly associated with a reduced risk for malaria infection and anemia in children under five.<br>• There was a non-significant decrease in malaria parasitemia prevalence a year after the campaign.<br>• Despite high bed net coverage, use had declined substantially 14 months after the campaign. |

### Problem Identification

Malaria is the leading cause of death in Mozambique in children under five years old, with 35% of children aged under five years testing positive for malaria parasites in 2011.

### Exploring Causes

Insecticide-treated bed nets are known to decrease all-cause child mortality (by 22%) and malaria morbidity, and are also able to measurably decrease community-wide malaria transmission.[1,2] Malaria parasitemia prevalence in children under five in Sofala Province was measured to be 40% in the 2007 Malaria Indicator Survey.

### Designing the Intervention

**Context:** Decreasing malaria transmission is dependent on achieving high coverage with bed nets. However, it is still unclear how to achieve universal coverage efficiently. One issue is determining how many bed nets to procure and how to distribute them, with strategies ranging from a fixed number of bed nets per household regardless of household size, one net for every two people, or one net for each sleeping space[3,4]

**Target group:** This novel distribution model was employed in April 2010 in four districts in Sofala Province in central Mozambique. The four districts participating in the distribution campaign had a total population of 218,537 distributed among 244 communities, as determined during baseline data collection.

**Intervention activities:**

- Community leaders conducted the baseline household census and enumerated the population, including data on household composition.
- A total of 140,000 long-lasting insecticide-treated bed nets were distributed using this model, along with education about their use.

## Results

The campaign reached 98% (95% CI: 97-99%) of households registered during the pre-campaign listing, with 81% (95% CI: 77-85%) of sleeping spaces covered by campaign bed nets and 85% (95% CI: 81-88%) of the population sleeping in a sleeping space with a campaign bed net designated for the sleeping space.

## Monitoring and Evaluation[5]

Household, cross-sectional surveys were conducted one month after the 2010 distribution of bed nets and again 14 months after the campaign in 2011. During household visits, data on bed net ownership, access, and use were collected.6 In addition, malaria blood smears were performed and hemoglobin levels were assessed in children under five. These indicators were analyzed at individual, household and community levels.

Key results of the evaluation included the following:

- One year after the campaign, 65% (95% CI: 57-72%) of sleeping spaces were observed to have hanging bed nets. The proportion of sleeping spaces for which bed nets were reported used four or more times per week was 65% (95% CI: 56-74%) in the wet season and 60% (95% CI: 52-68%) in the dry season. (Table 1)
- Malaria parasitemia prevalence in children under five years old was 47% (95% CI: 40-54%) in 2010 and 36% (95% CI: 27-45%) in 2011.
- Individual-level malaria infection and anemia were significantly associated with community-level use of bed nets.

### Table 1. Coverage indicators following universal coverage long-lasting insecticidal net (LLIN) distribution campaign in Sofala Province, Mozambique

| | % (95% CI) | |
|---|---|---|
| | 1 month after campaign | 14 months after campaign |
| **Ownership (campaign LLINs only)** | | |
| Proportion of households with at least one LLIN | 98 (97–99) | 93 (91–95) |
| **Access (campaign LLINs only)** | | |
| Proportion of households with sufficient LLINs | 85 (81–88) | 86 (83–89) |
| Proportion of households with at least 1 LLIN for every 2 people | 67 (64–70) | 62 (58–66) |
| Proportion of sleeping spaces covered by LLIN | 81 (77–85) | 81 (75–86) |
| Proportion of population with access to an ITN within their household (estimated) | 88 (86–89) | 81 (78–84) |
| **Usage (all bed nets)** | | |
| Proportion of sleeping spaces with a hung bed net | 61 (56–66) | 65 (57–72) |
| Proportion of individuals sleeping under a bed net last night | | |
| <5 years | 94 (91–96) | 79 (74–83) |
| 5–14 years | 88 (82–93) | 74 (67–80) |
| >14 years | 88 (82–92) | 76 (71–81) |

## References

1. Lengeler C. Insecticide-treated bed nets and curtains for preventing malaria. Cochrane Database Syst Rev 2004;(2):CD000363. Available from: http://www.ncbi.nlm.nih.gov/pubmed/15106149

2. Hawley WA, Phillips-Howard PA, ter Kuile FO, et al. Community-wide effects of permethrin-treated bed nets on child mortality and malaria morbidity in western Kenya. Am J Trop Med Hyg 2003;68(4 Suppl):121–7. Available from: http://www.ncbi.nlm.nih.gov/pubmed/12749495

3. Kilian A, Boulay M, Koenker H, Lynch M. How many mosquito nets are needed to achieve universal coverage? Recommendations for the quantification and allocation of long-lasting insecticidal nets for mass campaigns. Malar J 2010;9:330. Available from: http://www.malariajournal.com/content/9/1/330

4. Renggli S, Mandike R, Kramer K, et al. Design, implementation and evaluation of a national campaign to deliver 18 million free long-lasting insecticidal nets to uncovered sleeping spaces in Tanzania. Malar J 2013;12:85. Available from: http://www.malariajournal.com/content/12/1/85

5. Plucinski MM, Chicuecue S, Macete E, et al. Evaluation of a universal coverage bed net distribution campaign in four districts in Sofala Province, Mozambique. Malar J 2014;13(1):427. Available from: http://www.malariajournal.com/content/13/1/427

6. Kilian A, Koenker H, Baba E, et al. Universal coverage with insecticide-treated nets - applying the revised indicators for ownership and use to the Nigeria 2010 malaria indicator survey data. Malar J 2013;12:314. Available from: http://www.malariajournal.com/content/12/1/314

## Annex 4-2. Recommendations on Improving Use of Medicines for Child Health from the 2011 International Conferences on Improving Use of Medicines

The International Conferences on Improving Use of Medicines (ICIUM, see ICIUM conferences) are undertaken every seven years to summarize what is known about interventions to improve access to and use of medicines. All ICIUM 2011 presentations and posters are electronically captured and available on the ICIUM 2011 website (see ICIUM2011 program). Based on these materials and discussions at the conference, the ICIUM 2011 Child Health Track developed ten key recommendations on improving use of medicines for child health. These recommendations are listed below, each with all its related ICIUM 2011 presentations (see ICIUM topic summaries).

1. **Essential medicine lists (EMLs) should be harmonized with standard treatment guidelines (STGs) that exist for children. EMLs should include pediatric formulations and should be reviewed regularly to reflect current scientific evidence.**
   i. Van den Ham, R., Mantel-Teeuwisse,A. K., Laing, R. O. Selection of Essential Medicines. http://www.inrud.org/ICIUM/ConferenceMaterials/499-mantel-teeuwisse-_a.pdf
   ii. Batmanabane, G. and Holloway, K. A. Facilitating the Preparation of Essential Medicines List for Children in India: Lessons Learned. http://www.inrud.org/ICIUM/ConferenceMaterials/612-batmanabane-_a.pdf
   iii. Manikandan, S. and Batmanabane, G. Comparison of the National List of Essential Medicines (India) with the WHO Model Lists of Essential Medicines and Essential Medicines for Children. http://www.inrud.org/ICIUM/ConferenceMaterials/647-manikandan-_a.pdf

2. **Continuous education to encourage appropriate use and availability of pediatric medicines/formulations is essential at all levels in the health systems.**
   i. Ziganshina, L. E., Alexandrova, E. G., Gamirova, R. G., Yudina, E. V., Prokhorova, I. V., Safina, A. I., Pcusa, O. I. In-Service, Problem-Based Pharmacotherapy Teaching and Clinical Pharmacology Services Contribute to Improved Medicine Use in Children. http://www.inrud.org/ICIUM/ConferenceMaterials/606-ziganshina-_a.pdf
   ii. Vialle-Valentin, C. E., LeCates, R. F., Zhang, F., Tamer, D. A., Ross-Degnan, D. Is Pediatric Diarrhea Treated Correctly in African Communities? Evidence from Household Surveys in Five African Countries. http://www.inrud.org/ICIUM/ConferenceMaterials/851-vialle-valentin-_a.pdf
   iii. Ouvrard, S., Mariama, I. A., Zalika, O., Guillard, E. Encourage Appropriate Use of Pediatric Antiretrovirals with a Demonstration Kit in Pharmacies. http://www.inrud.org/ICIUM/ConferenceMaterials/1067-ouvrard-_a.pdf
   iv. Pudjiarto, P., Arifianto, A., Sakinah, F., Kurniawa, Y. Compounding Polypharmacy Prescription in Indonesia. http://www.inrud.org/ICIUM/ConferenceMaterials/1204-pujiarto-_a.pdf

3. **Education on medicine use for children should include new target groups such as school children.**
   i. Cebotarenco, N., Bush. P., Grigorchiuk, V. Community Learns Appropriate Antibiotic Use through Kindergarten Performances. http://www.inrud.org/ICIUM/ConferenceMaterials/553-cebotarenco-_a.pdf
   ii. Bankar, M., Thawani, V., Gharpure, K. Promoting Proper Use of Medicines in School Children-An International Study. http://www.inrud.org/ICIUM/ConferenceMaterials/659-bankar-_c.pdf
   iii. Cebotarenco, N. and Bush, P. School-based Education Program Can Favorably Impact National Public Health Budget. http://www.inrud.org/ICIUM/ConferenceMaterials/1054-cebotarenco-_a.doc

4. **When designing and evaluating interventions targeting medicines for children, it is critical to adopt a "systems thinking" perspective that takes into account all related aspects of governance, financing, human resources, service delivery, as well as medicines/vaccines and information technologies.**
   i. Kakai, R., Nasimiyu, J., Odero, W. Low Reliability of Home-Based Diagnosis of Malaria in a Rural Community in Western Kenya. http://www.inrud.org/ICIUM/ConferenceMaterials/267-kakai-_c.pdf
   ii. Gitanjali, B. and Holloway, K. A. Better Medicines for Children in India: A Project to Improve Access to Medicines. http://www.inrud.org/ICIUM/ConferenceMaterials/615-batmanabane-_a.pdf

iii. Movahed, M. Standardization of Prescribing and Using Oral Liquid Dosage Forms (OLDFs). http://www.inrud.org/ICIUM/ConferenceMaterials/787-movahed-_b.ppt

iv. Yeboah-Antwi, K. Improving the Use of Artemisinin-Based Combination Therapy in Rural Zambia. http://www.inrud.org/ICIUM/ConferenceMaterials/835-yeboah-antwi-_c.pdf

v. Meiburg, A. and Kusemereraw, D. Availability of Pediatric Medicines and Factors Impacting Availability in Faith-Based Health Facilities in Chad. http://www.inrud.org/ICIUM/ConferenceMaterials/865-meiburg-_a.pdf

vi. Kimatta, S. and Eastern African Drug Seller Initiative (EADSI). Can the Management of Uncomplicated Diarrhea at the ADDOs in Tanzania be Further Improved? http://www.inrud.org/ICIUM/ConferenceMaterials/1069-rutta-_c.pdf

**5. In their efforts to improve the use of children's medicines, countries should engage all stakeholders, including the unregulated private sector; new thinking is needed to identify incentives and sanctions that work best in the private sector.**

i. Annan, E., Gyansa-Lutterodt, M., Boateng, K. P., Adu Asare, B., Koduah, A. Assessing Local Manufacturing Capacity for Child Specific Dosage Formulations: The Case of Ghana. http://www.inrud.org/ICIUM/ConferenceMaterials/404-annan-_b.ppt

ii. Kedenge, S. V. The Impact of Retail Sector Delivery of Artemether-Lumefantrine on Effective Malaria Treatment of Children Under Five in Kenya. http://www.inrud.org/ICIUM/ConferenceMaterials/712-pamba_kangwana-_c.pdf

iii. Ofori-Adjei, D., Segbaya, S., Koram, K., Adogboba, K., and Enyimayew, N. Improving Access to ACTs Through Licensed Chemical Sellers in Ghana. http://www.inrud.org/ICIUM/ConferenceMaterials/1081-ofori-adjei-_c.pdf

**6. Monitoring how well childhood infections are treated is possible with small data sets and/or methodological limitations.**

i. Kounnavong S., Sunahara T., Hashizume M., Mascie-Taylor N., Okumura J., Moji K., Boupha, B, and Yamamoto, K. Effect of Daily Versus Weekly Home Fortification with Multiple Micronutrient Powder on Haemoglobin Concentration of Young Children in a Rural Area, Lao People's Democratic Republic: A Randomized Trial http://www.inrud.org/ICIUM/ConferenceMaterials/107-kounnavong-_c.pdf

ii. Mohamed, A. M. Adherence to and Outcome of Isoniazid Preventive Chemotherapy in Household Children Contact with Adults Having Pulmonary Tuberculosis. http://www.inrud.org/ICIUM/ConferenceMaterials/344-mohamed-_c.pdf

iii. Almeida de Oliveira, E., Domingues, M. R., Santos, I. S., Barros, A. J. D., Bertoldi, A. D. Medicine Use from Birth to Two Years of Age: The 2004 Pelotas (Brazil) Birth Cohort Study. http://www.inrud.org/ICIUM/ConferenceMaterials/407-oliveira-_a.pdf

iv. Almeida de Oliveira, E., Domingues, M. R., Sanots, I. S., Barros, A. J., Bertoldi, A. D. Factors Associated with Medicine Use among Children from the 2004 Pelotas (Brazil) Birth Cohort Study. http://www.inrud.org/ICIUM/ConferenceMaterials/408-oliveira-_c.pdf

v. Simba, D., and Kakoko, D. High Adherence to Artemether-Lumefantrine Treatment in Children Under Real-Life Situation in Rural Tanzania. http://www.inrud.org/ICIUM/ConferenceMaterials/474-simba-_c.pdf

vi. Jurniawan, Y., Pudjiarto, P., Kresnawati, W. Irrational Prescribing for Children with Upper Respiratory Tract Infection (URTI) in Indonesia. http://www.inrud.org/ICIUM/ConferenceMaterials/703-kurniawan-_a.pdf

vii. Pathak, A., Pathak, D., Marrone, G., Diwan, V., Lundborg, C. S. Adherence to Treatment Guidelines for Acute Diarrhoea in Children up to 12 Years in Ujjain, India. http://www.inrud.org/ICIUM/ConferenceMaterials/772-pathak-_b.ppt

viii. Cebotarenco, N., Kurian, M., Cetulean, M., Alexandru, S. MDR-TB Among Children in Moldova. http://www.inrud.org/ICIUM/ConferenceMaterials/1022-cebotarenco-_a.doc

7. **However, it is crucial to strengthen the quality of data that informs policy decisions about children's medicines in LMICs. Periodic evaluation of efforts to improve medicines access and use for children is essential.**
   i. Simba, D. O. and Kakoko, D. Does Artemnether-Lumefantrine Subsidy to Private Sector Improve Prompt Access to Antimalarials to Febrile Children in Rural Areas? http://www.inrud.org/ICIUM/ConferenceMaterials/434-simba-_a.doc
   ii. Rowe, A. K., Onikpo, F., Lama, M., Osterholt, D. M., Rowe, S. Y., Deming, M. S. Multifaceted Intervention to Improve Health Worker Adherence to Integrated Management of Childhood Illness (IMCI) Guidelines in Benin. http://www.inrud.org/ICIUM/ConferenceMaterials/635-rowe-_c.pdf

8. **Evidence about the effectiveness and costs of strategies to improve access and use of medicines for children should be summarized, and the results should be disseminated and used by decision-makers and program managers.**
   i. Beran, D. and Armstrong, K. A Rapid Assessment Protocol for Improving Access (RAPIA) to Medicine and Care for Children living with a Chronic Condition (Congenital Adrenal Hyperplasia) in Vietnam. http://www.inrud.org/ICIUM/ConferenceMaterials/144-armstrong-_c.pdf
   ii. Ansah, E. K. The Effects of Reducing the Direct Cost of Care on Health Services Utilization and Health Outcomes in Ghana: A Randomized Controlled Trial. http://www.inrud.org/ICIUM/ConferenceMaterials/307-ansah-_c.pdf
   iii. Adams, L. V., Criag, S. R., Mmbaga, E. H., Naburi, H., Kisenge, R., Spielbergg, S. P. Parents' and Caretakers' Administration Practices and Formulation Preferences of Children's Medicine in Tanzania. http://www.inrud.org/ICIUM/ConferenceMaterials/488-adams-_a.pdf
   iv. El-Sayed, H. Effectivenss of Oral Zinc Supplementation in the Treatment of Acute Watery Diarrhea. http://www.inrud.org/ICIUM/ConferenceMaterials/709-el-sayed-_c.pdf and INCLEN Childnet Zinc Effectiveness for Diarrhea (IC-ZED) Group. Zinc Supplementation in Acute Diarrhea is Acceptable, Does Not Interfere with Oral Rehydration, and Reduces the Use of Other Medications: A Randomized Trial in Five Countries J Pediatr Gastroenterol Nutr, Vol. 42, No. 3, March 2006
   v. Oshikoya, K. A. Incidence and Cost Estimate of Treating Pediatric Adverse Drug Reactions in Lagos, Nigeria. http://www.inrud.org/ICIUM/ConferenceMaterials/1210-oshikoya-_c.pdf

9. **Continuous monitoring, evaluation, and feedback should be part of Integrated Management of Childhood Illness (IMCI), and indeed should apply to the entire health system to encourage quality.**
   i. World Health Organization and Ministry of Health of Ghana (presented by Brantuo). An Audit of Case Management of Common Childhood Illnesses in Hospitals in Ghana. http://www.inrud.org/ICIUM/ConferenceMaterials/416-brantuo-_a.pdf

10. **Community capacity development through education, full participation, and supervision of community health workers in integrated Community Case Management (iCCM) should be encouraged; supervision of supervisors is essential and incentives need to be carefully considered to ensure sustained quality of care and motivation.**
   i. Hoa, N. Q., Larsson, M., Chuc, N. T. K., Erikson, B., Trung, N. V., Lundbord, C. S. Antibiotics for Pediatric Acute Respiratory Infections in Rural Vietnam: Healthcare Providers' Knowledge, Practical Competence, and Reported Practice. http://www.inrud.org/ICIUM/ConferenceMaterials/199-hoa-_a.pdf
   ii. Rowe, A. K., Onikpo, F., Lama, M., Deming, M. S. Rise and Fall of Supervision in a Project Designed to Strengthen Supervision on the Integrated Management of Childhood Illness (IMCI) Strategy in Benin. Available at: http://www.inrud.org/ICIUM/ConferenceMaterials/633-rowe-_c.pdf
   iii. Rowe, A. K., Onikpo, F., Lama, M., Osterholt, D. M., Rowe, S. Y., Deming, M. S. Multifaceted Intervention to Improve Health Worker Adherence to Integrated Management of Childhood Illness (IMCI) Guidelines in Benin. http://www.inrud.org/ICIUM/ConferenceMaterials/635-rowe-_c.pdf

## Annex 4-3. Additional Examples of Interventions To Improve Use of Medicines for Children or to Strengthen Related Aspects of Health Systems

<table>
<tr><td colspan="2">Name:<br>ACCESS, ACCESS II</td><td>Source:<br>IFPMA</td></tr>
<tr><td colspan="3">Description:<br>ACCESS is a public-private partnership intended to analyze and improve access to effective malaria treatment.</td></tr>
<tr><td>Year:<br>2003</td><td>Country:<br>Tanzania</td><td>Target:<br>Malaria</td></tr>
<tr><td colspan="3">Components:<br>The main ACCESS interventions have included:<br>• Social marketing campaigns to inform the population on causes, symptoms, and appropriate treatment of malaria<br>• Training and supportive supervision of health personnel<br>• Establishment of licensed private drug stores<br><br>ACCESS-II has aimed to increase the demand for adequate malaria services in order to induce more people with relevant symptoms to come for treatment in a health center or a licensed drug store</td></tr>
<tr><td colspan="3">Links:<br>1. http://www.novartisfoundation.org/page/content/index.asp?MenuID=513&ID=1628&Menu=3&Item=44.16<br>2. http://www.ifpma.org/fileadmin/content/Publication/IFPMA_Woman___Child_Health_Partnerships_2011.pdf<br>3. http://partnerships.ifpma.org/pages/</td></tr>
<tr><td colspan="2">Education:<br>Consumer education, training of health personnel</td><td>Managerial:</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:<br>Licensing for private drug stores; pricing policy</td></tr>
<tr><td colspan="3">Implementers:<br>Novartis, Swiss Tropical and Public Health Institute</td></tr>
<tr><td colspan="3">Stakeholders:<br>Health personnel, private drug stores</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>Accredition of Drug Shops (ADS)</td><td>Source:<br>ICIUM 2011</td></tr>
<tr><td colspan="3">Description:<br>The main objective of ADS is to improve dispensing practices and management of uncomplicated malaria.</td></tr>
<tr><td>Year:<br>2008-2010</td><td>Country:<br>East Africa</td><td>Target:<br>Malaria</td></tr>
<tr><td colspan="3">Components:<br>ADS aims to transform existing class C drug shops into well-regulated and profitable accredited drug shops. To accomplish this, the project will train health assistants as local monitors to supplement NDA's regular inspections, while training drug sellers and owners in proper dispensing and business skills. The intervention also involves regular supportive supervision and on-site monitoring and record keeping.</td></tr>
<tr><td colspan="3">Links:<br>4. http://www.inrud.org/ICIUM/ConferenceMaterials/921-maija-_a.pdf#search=%22accreditation%20regulation%22<br>5. http://www.inrud.org/ICIUM/ConferenceMaterials/921-maija-_c.pdf#search=%22accreditation%20regulation%22<br>6. http://www.msh.org/news-bureau/uganda-launches-accredited-drug-shops-in-kibaale.cfm</td></tr>
<tr><td colspan="2">Education:<br>Training of health personnel</td><td>Managerial:<br>On-site monitoring, record keeping, regular supportive supervision</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:<br>Regulationa/accreditation</td></tr>
<tr><td colspan="3">Implementers:<br>MSH, Ugandan NDAs</td></tr>
<tr><td colspan="3">Stakeholders:<br>Ugandan NDAs, health assistants, drug shops</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>Bagong Baranggay project</td><td>Source:<br>I-CATCH</td></tr>
<tr><td colspan="3">Description:<br>I-CATCH (International Community Access to Child Health) was designed with focus on improving children's health and their access to health services, and improving newborn health by enhancing coordination among local health organizations.</td></tr>
<tr><td>Year:<br>2006-2009</td><td>Country:<br>Philippines</td><td>Target:<br>MCH</td></tr>
<tr><td colspan="3">Components:<br>Pediatrician Alexis Reyes developed a community-based system for family-centered care of at-risk mothers and infants in a low-income urban community of 35,500. A needs assessment showed that prenatal care was limited; poorly coordinated, high-risk pregnancies were undetected; and there was a lack of communication between the birthing unit, the primary care provider, specialty clinics, and support services. Subsequently, CHWs were trained to identify high-risk pregnancies and high-risk newborns, refer when necessary, enroll every child in a medical home, and institute a tracking system for home visits and continual care. Partnerships were established with community-based healthcare providers to address existing gaps in service delivery. As of August 2010, of 942 pregnancies in the targeted community, 280 were identified as high risk. From the 718 deliveries, there were 40 high-risk neonates. Of the 26 high-risk pregnancies, 17 newborns from those pregnancies underwent full developmental assessment, and developmental delay was detected in nine. Teenage pregnancies accounted for 28% of all deliveries.</td></tr>
<tr><td colspan="3">Links:<br>7. Duncan et al 2012 Child Healthcare Workers in Resource-Limited Areas Improve Health with Innovative Low-Cost Projects Journal of Tropical Pediatrics, vol. 58, no. 2, http://tropej.oxfordjournals.org/content/58/2/120.abstract</td></tr>
<tr><td colspan="2">Education:<br>Training of CHWs</td><td>Managerial:</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>American Academy of Pediatrics</td></tr>
<tr><td colspan="3">Stakeholders:<br>Health care providers, CHWs</td></tr>
</table>

| **Name:**<br>Balasahyoga | | **Source:**<br>Health Market Innovations |
|---|---|---|
| **Description:**<br>The Balasahyoga program represents the first comprehensive effort to help families affected by HIV and AIDS in India.The goal is to help children by empowering their families to care for themselves. The program treats each family as special and assigns each a family case manager who ensures that their specific needs are addressed comprehensively. | | |
| **Year:**<br>2007 | **Country:**<br>India | **Target:**<br>HIV/AIDS |
| **Components:**<br>Balasahyoga's family-focused approach to caring for children affected by HIV is holistic, comprehensive and multisectoral. Moreover, it addresses the epidemic's impact on a massive scale, with plans to support 40,000 HIV-affected households throughout the state over five years. Interventions take into account several aspects of a child's well-being, for example, linking a child to clinical care, including antiretroviral therapy (ART), and nutritional and educational support. The program also arranges income-generating activities and ART for a child's parents and ensures that the family has a safe place to live. The goal is to help children by empowering their families to care for themselves. The program treats each family as special and assigns each a family case manager who ensures that their specific needs are addressed comprehensively. The uniqueness and strength of this program lies in its diversity, scale, community ownership and range of partnerships. Local people participate in the planning process, which helps ensure programming that is both relevant and sustainable. Community advisory boards have been established at the district level, comprised of religious leaders, members of local governing bodies, people living with HIV and AIDS, and older children. The advisory boards meet quarterly to identify and prioritize needs. | | |
| **Links:**<br>8. http://healthmarketinnovations.org/program/balasahyoga | | |
| **Education:**<br>Consumer education | | **Managerial:**<br>Service delivery network |
| **Economic:** | | **Regulatory:** |
| **Implementers:**<br>FHI, NACO,APSACS, Clinton Foundation | | |
| **Stakeholders:**<br>Local governmening bodies | | |

| **Name:**<br>Bandhan Health Program | | **Source:**<br>Health Market Innovations |
|---|---|---|
| **Description:**<br>The goal of Bandhan Health Program is to create health awareness among mothers and adolescent girls, to ensure easy accessibility to health services available at the government and nongovernment levels in a sustainable level. In addition, Bandhan Health Program works to reduce health expenditures of poor families as well as to develop health entrepreneurs/volunteers. | | |
| **Year:**<br>2007 | **Country:**<br>India | **Target:**<br>MCH, GP |
| **Components:**<br>Bandhan Health Program works with women, children, and adolescents. The health program is comprised of health education (health forums facilitated by Bandhan's Health Community Organizer), health product distribution (via health kits provided to the health volunteers), and linkages/referrals to public health centers. Monthly health forums are conducted in an interactive and participatory manner. An array of topics such as diarrhea, care of pregnant woman, quality health care, pneumonia, water and sanitation, neonatal care, and others are covered during these forums. The health volunteers, known as Swastha Sohayika (SS), visit households in their villages and reinforce the messages discussed in the health forums. They assess the prevalent health practices in their communities. In addition, they also have a health kit with basic medicines and health products (oral contraceptive pills, ORS, sanitary napkins, paracetamol, and similar products) for distribution. The SS also work as liaisons with the government and refer woman requiring care to public primary health centers. | | |
| **Links:**<br>9. http://healthmarketinnovations.org/program/bandhan-health-program<br>10. http://www.bandhan.org/report/bhp_2011.pdf | | |
| **Education:**<br>Consumer education | | **Managerial:**<br>Servicy delivery network |
| **Economic:**<br>Microfinance | | **Regulatory:** |
| **Implementers:**<br>Bandhan Konnagar | | |
| **Stakeholders:**<br>Bandhan's health community organizations, health volunteers/ Swastha Sohayika (SS) | | |

<table>
<tr><td colspan="2">Name:<br>Benin Malaria-Control Project</td><td>Source:<br>AJPH</td></tr>
<tr><td colspan="3">Description:<br>The Benin Malaria-Control Project uses the IMCI-recommended strategy for early-childhood mortality and promoted insecticide-treated nets (ITNs).</td></tr>
<tr><td>Year:<br>1999-2004</td><td>Country:<br>Benin</td><td>Target:<br>Malaria</td></tr>
<tr><td colspan="3">Components:<br>The Benin Malaria-Control Intervention includes the following activities:<br>• ITN_promotion: health-education talks to groups of mothers, individual counseling, and campaigns for re-treatment of ITNs<br>• ITN distribution & promotion thru community & health facility activities<br>• Several UNICEF-supported child-health activities (IMCI training for health workers, ITN promotion)<br>• Routine preventive and curative services were provided and promoted (vaccination, vitamin A supplementation campaigns)</td></tr>
<tr><td colspan="3">Links:<br>11. Rowe el al (2011) Am J Public Health. 2011 Dec;101(12):2333-41<br>http://www.ncbi.nlm.nih.gov/pubmed/21566036</td></tr>
<tr><td colspan="2">Education:<br>Consumer education, training of CHW</td><td>Managerial:</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>WHO,UNICEF</td></tr>
<tr><td colspan="3">Stakeholders:<br>Public health facilities, health workers</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>BRAC Manoshi</td><td>Source:<br>Health Market Innovations</td></tr>
<tr><td colspan="3">Description:<br>Manoshi is a five-year, urban maternal, neonatal, and child health program with funding from the Bill & Melinda Gates Foundation. The program equips Shastho Karmi (SK) health workers with mobile phone-based data collection software, allowing them to more efficiently record and report vital patient information in a simple and standardized format</td></tr>
<tr><td>Year:<br>2009</td><td>Country:<br>Bangladesh</td><td>Target:<br>MCH</td></tr>
<tr><td colspan="3">Components:<br>ClickDiagnostics is a mobile phone-based solution for streamlining BRAC's data collection procedures in Manoshi, enabling BRAC to take a more pro-active approach in reaching women in urban slums. ClickDiagnostics proposed a simple and yet powerful mechanism for data collection, which would eliminate most, if not all, of the bottlenecks faced by the Manoshi program. Under this system, health workers (Shastho Karmi-SK) are equipped with a mobile-based data collection software which enables them to collect vital patient information in a simple one-by-one question format with multiple choice answers. The data are viewable on a secure web page where the doctor is able to provide feedback based on the patient's information directly to the SK's mobile phone. An automated risk assessment algorithm analyzes each patient's data and categorizes the patient into a risk category on the basis of predefined criteria. Based on pre-set rules, the server can also generate automatic alerts to different tiers of the Manoshi personnel. The system also generates automatic work schedules for SKs, prioritizing higher risk patients.<br>Supervisors are able to monitor the data sent by SKs cumulatively and individually in an intuitive but powerful graphical reporting and monitoring tool. SMS alerts are generated to supervisors for workers missing their daily/weekly/monthly targets. In this way, it is hoped that the system will become more efficient.</td></tr>
<tr><td colspan="3">Links:<br>12. http://healthmarketinnovations.org/program/brac-manoshi</td></tr>
<tr><td colspan="2">Education:</td><td>Managerial:<br>mHealth, routine surveillance</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>Bangladeshi Rural Advancement Committee (BRAC) , Bil l& Melinda Gates Foundation</td></tr>
<tr><td colspan="3">Stakeholders:<br>SK health workers</td></tr>
</table>

| **Name:**<br>Busia Child Survival Project | | **Source:**<br>Health Market Innovations |
|---|---|---|
| **Description:**<br>The project worked to reduce child and maternal mortality through various strategic approaches, including building capacity, improving quality assurance, and working with behavior change and communication techniques. | | |
| **Year:**<br>2005-2010 | **Country:**<br>Kenya | **Target:**<br>MCH,AID/HIV, Malaria |
| **Components:**<br>The goal of the project was to achieve a sustained reduction in child and maternal mortality. The project focused 40% of its efforts on maternal and newborn care, 40% on malaria control, and 20% on HIV and AIDS prevention. The main objectives were to increase the quality and availability of health services, provide training and equipment to improve the care offered at existing health centers, and increase the number and improve the skills of health workers. Three strategic approaches: 1) building capacity of the DHMT, health facility staff, and CORPs (community's own resource persons, who are community volunteers trained by AMREF to educate their fellow community members), aimed at improving the scope of their skills and knowledge in providing health services in order to improve access to services; 2) quality assurance and improved approaches in accessing quality care at health facilities and in the community; 3) behavior change and communication strategies at the household and community levels addressing cultural and societal barriers to disease prevention. AMREF educated and empowered households by addressing some of the cultural and societal barriers to disease prevention, trained hundreds of health care workers and reached tens of thousands of households with relevant health information, educated tens of thousands of people about malaria prevention, and distributed nearly 10,000 insecticide-treated nets to children and expectant mothers who are most vulnerable to malaria. | | |
| **Links:**<br>13. http://healthmarketinnovations.org/program/busia-child-survival-project | | |
| **Education:**<br>Consumer education, training of CHVs | | **Managerial:**<br>Service delivery enhancement |
| **Economic:** | | **Regulatory:** |
| **Implementers:**<br>AMREF, MOH Busia | | |
| **Stakeholders:**<br>CHWs | | |

<table>
<tr><td colspan="2">Name:<br>Cameroon Health Sector Support Investment Project (CHSSIP)</td><td>Source:<br>Health Market Innovations</td></tr>
<tr><td colspan="3">Description:<br>Cameroon Health Sector Support Investment Project (CHSSIP) aims to support the government's efforts to increase utilization and improve the quality of health services with a particular focus on maternal and child health and communicable diseases.</td></tr>
<tr><td>Year:<br>2009-2014</td><td>Country:<br>Cameroon, NW,Littoral, SW</td><td>Target:<br>MCH</td></tr>
<tr><td colspan="3">Components:<br>The project will finance: (1) district-level services using a performance-based contracting approach; (2) institutional capacity building for contracting; and (3) a unified monitoring and evaluation system. This initiative will support the financing of performance-based contracts (including financing of operating costs, goods, and technical assistance) between the provincial health funds and district health committees, NGOs or health facilities; contribute to the operating costs of the special funds for health promotion; and finance the procurement of required drugs, reagents, and commodities to be done at the national level. The project's focus on institutional capacity-building will include technical and financial support to strengthen two key normative functions of the Ministry of Health at the national, provincial, and district levels. Support will be provided in two main areas: (1) contract design and management, including setting up the institutional framework and systems and building capacity to prepare, negotiate, and manage contracts; and (2) putting in place a unified information system to generate up-to-date, reliable, financial and programmatic data. The project will be initiated in 3 provinces (North-West, Littoral, South-West), and scaled up to 7 other provinces once funds are established.</td></tr>
<tr><td colspan="3">Links:<br>14. http://www.rbfhealth.org/sites/rbf/files/RBF_Country_CAMEROON_R2.pdf</td></tr>
<tr><td colspan="2">Education:</td><td>Managerial:<br>Service delivery network</td></tr>
<tr><td colspan="2">Economic:<br>P4P</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>Sector Investment Loan (SIL)</td></tr>
<tr><td colspan="3">Stakeholders:<br>MoGH, districts, NGOs, health workers, managers, teams</td></tr>
</table>

| **Name:**<br>Community Empowerment in Health | | **Source:**<br>Health Market Innovations |
|---|---|---|
| **Description:**<br>The program aims to save lives at the household level. Omni Med has partnered with local health officials, the US Peace Corps, Volunteers for Prosperity, and local and transnational NGOs to train community health workers, called village health teams (VHTs) in the Mukono District of Uganda. These teams are comprised of local volunteers from the surrounding villages, who, once trained, provide valuable primary health care to the underserved population in the area. | | |
| **Year:**<br>2008 | **Country:**<br>Uganda | **Target:**<br>HIV/AIDS, Malaria |
| **Components:**<br>The program consists of the following components:<br>(1) A recurring week-long training course offered to VHTs (25-30 per course), preparing them to implement preventative and curative strategies such as malaria prevention and treatment through bed-net usage and prompt diagnosis and referral; prevention, screening, and referral for HIV and AIDS; promotion of sexual and reproductive health to reduce birthrates and prevalence of sexually transmitted diseases; and maternal and child care, including immunization.<br>(2) The training is reinforced by focus groups, quarterly meetings, and follow-up home visits by VHTs accompanied by international volunteers who facilitate a training course, a focus group, or quarterly meeting, and complete multiple home visits during their stay.<br>(3) The home visits and focus groups allow the program's managers to monitor the program's efficacy.<br>(4) The current program also sends volunteers door-to-door with newly trained VHTs to reinforce their training, helping volunteers to distribute laminated sheets with the 12 most important preventive measures, translated into the local language (Luganda). | | |
| **Links:**<br>15. http://healthmarketinnovations.org/program/community-empowerment-health | | |
| **Education:**<br>VHTs training | | **Managerial:** |
| **Economic:** | | **Regulatory:** |
| **Implementers:**<br>OmniMed, US Peace Corps, Ministry of Health, Brookings Institution, Center for Social Development at Washington University | | |
| **Stakeholders:**<br>VHTs, local health teams | | |

| **Name:**<br>Community Integrated Management Child Illness (C-IMCI) | | **Source:**<br>Health Market Innovations |
|---|---|---|
| **Description:**<br>Community Integrated Management Child Illness (C-IMCI) is a strategy that has been initiated and implemented by the Ministry of Health (MoH) through Child Health Program since 2004 to improve child health status in Cambodia | | |
| **Year:**<br>2004 | **Country:**<br>Cambodia | **Target:**<br>MCH |
| **Components:**<br>The initiation of C-IMCI aims at reducing death as well as the frequency and severity of illness and disability at community level through village health support groups (VHSGs) and other groups of community volunteers and health activists, with some support and involvements from public health system and other relevant ministries and institutions. Focal persons at sub-national level are trained on 11 modules including introduction; adult learning and basic communication skills; antenatal and postnatal care; breast-feeding and complementary feeding; micronutrients; immunization; hygiene and infectious disease prevention; home care of sick child and care seeking; psychosocial development of the child; malaria prevention and treatment; and community case management of pneumonia, diarrhea, and fever. Roles and responsibilities are set for the focal persons at national levels down to community level. C-IMCI focal persons at the national level are responsible for conducting trainings of trainers for C-IMCI focal persons at provincial health departments (PHDs) and operational districts (ODs). Provincial and district C-IMCI focal persons in turn roll out the relevant trainings for health center staff; the trained health center staff conduct training, with assistance from PHDs and ODs, for VHSGs, relevant community volunteers, and school teachers. Finally, the trained VHSGs organize community health education sessions on all modules and facilitate case referral to health facilities. | | |
| **Links:**<br>16. Ex- Post Evaluation: Community-Integrated Management of Childhood Illness.Pilot Project. Pursat, Cambodia. Available at: http://www.careevaluations.org/Evaluations/Cambodia%20-%20TKC%20FINAL%20CIMCI%20eval%2022%203%2005.doc | | |
| **Education:**<br>Provider training, Consumer education | | **Managerial:**<br>Innovative operational process |
| **Economic:** | | **Regulatory:**<br>Policy/legislation |
| **Implementers:**<br>National Nutrition Program, National Reproductive Health Program, National Immunization Program, National Center of Malaria, Communicable Disease Control Department, Ministry of Education, Youth and Sports, National Center for Health Promotion, Ministry of Health | | |
| **Stakeholders:**<br>MoH, VHSGs, community volunteers, health activites, relevant ministires and institutions from national level down to community level | | |

<table>
<tr><td colspan="2">Name:<br>Community-based distibution of ACT</td><td>Source:<br>Malaria Journal</td></tr>
<tr><td colspan="3">Description:<br>As originally developed, community case management for malaria (CCMm) focused on rural, underserved areas with high malaria transmission in Africa. However, the on-going urbanization process and consequent epidemiological changes demand for an improvement of access to effective malaria treatment in urban settings.</td></tr>
<tr><td>Year:<br>2006-2009</td><td>Country:<br>Ghana, Malawi, Ethiopia, Burkina Faso</td><td>Target:<br>Malaria</td></tr>
<tr><td colspan="3">Components:<br>Each country established a network of community medicine distributors (CMDs): Bolgatanga (Ghana) had community-based drug distributers (CDDs) and Kumasi (Ghana) had community-based agents or community medicine distributors; Lilongwe (Malawi) had health surveillance assistants (HSAs); Jimma (Ethiopia) had community health volunteers (CHVs); Ouagadougou (Burkina Faso) had agents de santé communautaire (ASCs).<br>CMDs were selected by the communities and had similar characteristics: they lived in the study communities; had at least a basic level of education; were volunteers; the majority were employed and did their CMD job as a secondary occupation; and they had varying occupational backgrounds. CMDs were regularly supervised in all countries according to national policies. Anti-malarial drugs were provided for free in Malawi and Ethiopia and for a small amount of money in Burkina Faso and Ghana. In Burkina Faso, the amount charged to patients was the same at health center and community level; CMDs, however, were allowed to keep 10% of the sales revenues as an incentive for their work when they were replenishing their stock at the health center.</td></tr>
<tr><td colspan="3">Links:<br>17. Feasibility and acceptability of ACT for the community case management of malaria in urban settings in five African sites Akweongo et al. Malaria Journal 2011, 10:240 http://www.malariajournal.com/content/10/1/240</td></tr>
<tr><td colspan="2">Education:<br>Training of CMD</td><td>Managerial:<br>Supervision</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:<br>Drug pricing policy</td></tr>
<tr><td colspan="3">Implementers:<br>UNICEF, UNDP, World Bank, WHO</td></tr>
<tr><td colspan="3">Stakeholders:<br>CMD, health worders</td></tr>
</table>

| **Name:**<br>COMPRI-A: Communication for Behavior Change | | **Source:**<br>Health Market Innovations |
|---|---|---|
| **Description:**<br>The COMPRI-A (Expanding Access to Private Sector Health Products and Services in Afghanistan) project uses social marketing and behavior change communication to increase demand for, access to, and use of health products by women of reproductive age and children under five. Using print and broadcast media, personal community outreach, and training, the project educates the public about good health practices and promotes healthy behavior. USAID also works through the private health sector in Afghanistan to increase access to health care products, with a particular focus on rural and underserved areas of the country. | | |
| **Year:**<br>2006-2010 | **Country:**<br>Afghanistan | **Target:**<br>Family planning & reproductive health, GP |
| **Components:**<br>Behavior change communication – Provides educational messages about maternal and child health through the media and community outreach to encourage healthy behavior.<br>Product sales and distribution – Supplies affordable health products through the private sector. Current products include condoms, oral and injectable contraceptives, water purification solutions, and oral rehydration salts.<br>Training and community outreach – Provides training and community outreach programs on birth spacing and maternal and child health to doctors, pharmacists, midwives, religious leaders, community shuras (councils), women's groups, and school teachers.<br>Certification of private health providers – Improves the delivery of quality health products and services through training private sector healthcare providers, in collaboration with the Ministry of Public Health.<br>Research, monitoring, and evaluation – Conducts studies used in marketing strategy development, target audience identification, market share monitoring, and gauging public acceptance of health products and messages produced by the project.<br>Policy and advocacy – Stimulates private health sector distribution networks and creates an improved policy environment for delivery of quality health products and services.<br>HIV/AIDS Coordinating Committee of Afghanistan (HAACA) – Supports the National AIDS Control Program by creating the HACCA Secretariat to coordinate donor and stakeholder activities throughout the country. | | |
| **Links:**<br>18. http://healthmarketinnovations.org/program/communication-behavior-change-expanding-access-private-sector-health-products-and-services | | |
| **Education:**<br>Consumer education | | **Managerial:**<br>Supply chain enchancement, supervision |
| **Economic:** | | **Regulatory:**<br>Policy/legislation |
| **Implementers:**<br>USAID | | |
| **Stakeholders:**<br>MoPH, private sector health services, personal community outreach staff | | |

<table>
<tr><td colspan="2">Name:<br>e-IMCI</td><td>Source:<br>dImagi</td></tr>
<tr><td colspan="3">Description:<br>The main objective of the e-IMCI is to provide an electronic vision of IMCI to improve care in health facilities.</td></tr>
<tr><td>Year:<br>2008</td><td>Country:<br>Tanzania</td><td>Target:<br>Child health</td></tr>
<tr><td colspan="3">Components:<br>e-IMCI uses PDAs to provide step-by-step guidance to health workers through the IMCI treatment algorithm. The e-IMCI covers:<br>• First visits (not follow ups)<br>• Children between 2 months and 5 years old (not 0-2 months)<br>• Children without any of the IMCI danger signs<br>• Cough, diarrhea, fever, and ear problems (not immunizations, malnutrition or maternal health)<br>Currently, if any danger sign (vomiting, convulsions, trouble drinking, and lethargic/unconscious) is selected, e-IMCI displays a message telling the clinician to use the chart booklet. This was done to ensure that the study would not jeopardize the safety of ill children while testing e-IMCI.</td></tr>
<tr><td colspan="3">Links:<br>19. http://dub.washington.edu/djangosite/media/papers/tmpbj0qhL.pdf</td></tr>
<tr><td colspan="2">Education:<br>Training of CHWs</td><td>Managerial:<br>mHealth (PDA), IMCI flowchart</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>D-Tree International, UCBerkely, Harvard Univeristy, U of Washington, London School of Hygiene and Tropical Medicine</td></tr>
<tr><td colspan="3">Stakeholders:<br>Health workers, doctors, clinicians</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>Enhanced Diarrheal Disease Control in Vietnam</td><td>Source:<br>Health Market Innovations</td></tr>
<tr><td colspan="3">Description:<br>PATH is re-prioritizing diarrheal diseases within the Vietnamese government by supporting the updating and strengthening of national diarrheal disease control policies and clinical management guidelines and implementing these guidelines as a pilot project in Binh Dinh province.</td></tr>
<tr><td>Year:<br>2008</td><td>Country:<br>Vietnam</td><td>Target:<br>MCH</td></tr>
<tr><td colspan="3">Components:<br>The project aims to reduce the health and economic burdens that diarrheal disease create in Vietnam and encourage best practices across Asia. PATH and the Vietnam Ministry of Health convened a working group of technical experts that reviewed and updated Vietnam national prevention and treatment guidelines for diarrheal disease--”Guidelines for Management of Diarrhea in Children”. The new guidelines highlight the role health workers play in preventing and treating diarrhea, particularly in the education they provide to parents. The guidelines highlight a comprehensive set of interventions that can prevent diarrhea, such as handwashing with soap and appropriate hygiene, and treat diarrhea, including oral rehydration therapy and zinc. Low-osmolarity oral rehydration solution (ORS) and zinc are two new treatment interventions that are included in the updated guidelines. Also, PATH worked in collaboration with the Binh Dinh provincial health authorities to pilot the new guidelines at the local level. The pilot included provision of zinc treatment for diarrhea (with 24,000 zinc tables donated by Nutriset). Additionally, “ORS New” is now produced locally by the Binh Dinh Pharmacy and Health Equipment company, making it available in local pharmacies and health facilities; 44 oral rehydration therapy corners were set up at district hospitals and commune health stations to increase the accessibility of treatment facilities. These ORT corners also serve as education places where health workers demonstrate how to make and properly administer ORS treatment.</td></tr>
<tr><td colspan="3">Links:<br>20. http://healthmarketinnovations.org/program/enhanced-diarrheal-disease-control-vietnam<br>21. Keeping a focus on diarrheal disease control in Vietnam – PATH http://www.defeatdd.org/sites/default/files/node-images/VAC%20factsheet_Vietnam%20DD_final.pdf</td></tr>
<tr><td colspan="2">Education:<br>Consumer education, training of health workers</td><td>Managerial:<br>STG</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:<br>Policy/legislation</td></tr>
<tr><td colspan="3">Implementers:<br>PATH, MoH, Binh Dinh Provincial Health Department</td></tr>
<tr><td colspan="3">Stakeholders:<br>HWs, provincial health authorities, MoH</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>EPICS (Enabling Parents to Increase Child Survival)</td><td>Source:<br>BMC</td></tr>
<tr><td colspan="3">Description:<br>Enabling Parents to Increase Child Survival (EPICS) works to increase child survival through the introduction of community-based health interventions, includilng participatory health education and/or community-based primary health care in remote regions</td></tr>
<tr><td>Year:<br>2009</td><td>Country:<br>Guinea Bissau, Quinara and Tombali</td><td>Target:<br>Child health</td></tr>
<tr><td colspan="3">Components:<br>The EPICS intervention package includes community health promotion, training, and mentoring village health workers, and improved outreach services ahead of a planned expansion to a larger region of rural Guinea Bissau. At the start of the intervention, health clubs will be organized in each community, with approximately 60 households per club. These clubs will meet regularly for two years and cover topics related to maternal and child health that are expected to impact child mortality. In addition to health clubs, communities will meet at the start of the interventions to select village health workers (VHWs). These VHWs will be members of the health clubs and work closely with them. The VHWs will be given intensive block training (3–5 days for each session) by registered nurse trainers. Training for VHWs will reflect Ministry of Health policies and IMCI recommendations. VHWs will help manage their local health clubs and coordinate antenatal and vaccination service provision within the cluster.</td></tr>
<tr><td colspan="3">Links:<br>22. Knowledge and reported practices of men and women on maternal and child health in rural Guinea Bissau: a cross sectional survey King et al. BMC Public Health 2010, 10:319 http://www.biomedcentral.com/content/pdf/1471-2458-10-319.pdf</td></tr>
<tr><td colspan="2">Education:<br>Consumer education, training of VHWs (block training)</td><td>Managerial:</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>MoH, London School of Hygiene and Tropical Medicine</td></tr>
<tr><td colspan="3">Stakeholders:<br>VHWs, MoH</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>ePMTCT</td><td>Source:<br>Health Market Innovations</td></tr>
<tr><td colspan="3">Description:<br>ePMTCT aims to use existing technology to educate and mobilize mothers and families to demand ante-natal clinics (ANC) and prevention of mother-to-child transmission (PMTCT) services.</td></tr>
<tr><td>Year:<br>2010</td><td>Country:<br>Uganda</td><td>Target:<br>HIV/AIDS</td></tr>
<tr><td colspan="3">Components:<br>The ePMTCT reaches out to potential pregnant women with potential access to ANC and PMTCT clinics to educate them about ANC services and HIV and AIDS prevention. The project incorporates both radio and SMS messaging. The radio campaign reaches out to approximately 1.5 million people in the Western and Northern regions to educate them about ANC services and HIV and AIDS prevention. It is estimated that approximately 4,700 pregnant women in the areas of operation and about 2,500 children under five years of age children are HIV positive.</td></tr>
<tr><td colspan="3">Links:<br>23. http://healthmarketinnovations.org/program/epmtct</td></tr>
<tr><td colspan="2">Education:<br>Consumer education</td><td>Managerial:<br>mHealth</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>UNICEF, Text to Change (TTC), Catholic Relief Services (CRS), Association of Volunteers in International Service (AVSI)</td></tr>
<tr><td colspan="3">Stakeholders:<br>ANC and PMTCT services</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>EQUIP-Expanded Quality Management Using Information Power</td><td>Source:<br>Health Market Innovations</td></tr>
<tr><td colspan="3">Description:<br>EQUIP is an innovative intervention that aims to improve maternal and newborn health with an expanded health system quality management approach that links communities and facilities using locally generated data.</td></tr>
<tr><td>Year:<br>2010-2014</td><td>Country:<br>Tanzania, Uganda</td><td>Target:<br>MCH</td></tr>
<tr><td colspan="3">Components:<br>The project uses the Plan-Do-Study-Act cycles at community, health facility, and district levels powered by information from continuous multipurpose community and health facility surveys, with results presented in audience-specific report cards. The project teams in Tanzania and Uganda will use a plausibility design to evaluate health and quality outcomes in intervention and control districts, each covering 20-30 health facilities and their catchment populations. Cost and community effectiveness of this intervention will be estimated with population and facility level indicators. Changes in contextual factors will be carefully documented to enhance understanding of how health improvements are achieved. The impact on mortality will be modeled using the Lives Saved Tool.</td></tr>
<tr><td colspan="3">Links:<br>24. http://ki.se/en/phs/equip-expanded-quality-management-using-information-power-aiming-to-improve-maternal-newborn</td></tr>
<tr><td colspan="2">Education:<br>Provider training</td><td>Managerial:<br>mHealth, information technology, innovative operational processes, product/equipment, professional association</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:<br>Expansion incentives, policy/legislation</td></tr>
<tr><td colspan="3">Implementers:<br>Makerere University, Ifakara Health Institute, Karolinska Institutet, London School of Hygiene and Tropical Medicine, Evaplan International Health, Ltd, Heidelberg University Medical Centre</td></tr>
<tr><td colspan="3">Stakeholders:<br>Local communities and health facilities</td></tr>
</table>

| **Name:**<br>Hasta el Ultimo Rincón | | **Source:**<br>BASICS III |
|---|---|---|
| **Description:**<br>The strategic focus of the CCM program, known as Hasta el Ultimo Rincón (To the Furthest Corners), was to assist the Nicaraguan MOH to develop and strengthen the technical and operational capacity to provide timely, life-saving health interventions for rural infants and children (aged two months to five years) and to ensure that those interventions are sustained over time. | | |
| **Year:**<br>2007 | **Country:**<br>Nicaragua | **Target:**<br>diarrhea and pneumonia |
| **Components:**<br>Two policies provide a strong foundation for CCM in Nicaragua:<br>(1) Facility-based IMCI: Nursing staff at health posts are trained to use IMCI algorithms to treat common childhood illnesses, mainly diarrhea and pneumonia. IMCI is the technical backbone for CCM, as similar algorithms are developed for use by brigadistas to diagnose and administer a limited set of curative interventions.<br>(2). Community-based PROCOSAN (Program Comunitaria de Salud y Nutrición): PROCOSAN is a platform for maternal and child health interventions at the community level with the aid of brigadistas. Infant and child health strategies under PROCOSAN include growth monitoring (weight) and nutrition counseling; detection of early warning signs of illness and counseling on home-based management of childhood illness; referrals to health facilities and follow-up; and provision of vitamin A supplements and immunization.<br>CCM provides an opportunity to build on the outreach that PROCOSAN has achieved and improve upon it by better addressing the treatment needs of children in remote communities. | | |
| **Links:**<br>25. http://www.basics.org/reports/FinalReport/NicaraguaFinalReport_BASICS.pdf | | |
| **Education:**<br>Training of CHWs | | **Managerial:**<br>Supervision, support, facilitate |
| **Economic:** | | **Regulatory:** |
| **Implementers:**<br>USAID, BASICS | | |
| **Stakeholders:**<br>Nursing staff, health posts | | |

| **Name:**<br>HCAMF (Health Care at My Fingertips) | | **Source:**<br>Health Market Innovations |
|---|---|---|
| **Description:**<br>Health Care at My Fingertips (HCAMF) aims to improve health care access for 150,000-200,000 women, newborns, and young children in Illeret, Turkwel, and Meru, Kenya, and empower communities from these underserved and remote rural and urban regions to adopt a new health care model that combines electronic medical records (EMR), hand-held portable ultrasound diagnostics, e-health technology, and community health workers (CHWs). | | |
| **Year:**<br>2010 | **Country:**<br>Kenya | **Target:**<br>MCH, HIV/AIDS, TB, malaria, nutrition |
| **Components:**<br>HCAMF uses wireless technology to link remote, low-resource hospitals and clinics to competent clinicians that would not otherwise be available. Technology deployed will include portable hand-held ultrasounds, e-health technologies, point-of-care testing (POCT), EMRs, and health education. CHWs will use wireless e-health tablets to conduct health assessments of women and children. The tablets can record temperature, weight, blood pressure, blood oxygen, POCT, and cardiac and lung sounds. The tablets can also carry out diagnostic evaluations (e.g., for HIV and AIDS, malaria, TB) and electrocardiograms and take high resolution photographs. Data will be entered into the EMR and can be shared with remote team members for diagnosis and treatment assistance. CHWs will provide medical advice as appropriate and will make referrals to clinicians, pharmacists, or to their regional supervisor and/or local clinic/nurse as necessary for further assistance.<br>Specifically, the CHWs will offer health screenings in 500 schools in Meru, Illeret, and Turkwel (300+ primary and 200+ secondary) as part of their yearly physical. They will conduct HIV and TB screenings for approximately 1,000 orphaned children (250 each year) and deliver public health curriculum in the schools. The CHWs will also carry out physicals and ultrasounds on pregnant women, providing clinicians with GE's portable ultrasound 3D data sets with conventional 2D scanners that can lead to improved treatment before the condition reaches a critical juncture.<br>Sustainability: The first year of HCAMF will be free of charge for all participants. The second year will require residents to contribute a nominal annual fee [$2.50 US currency, ~197 Kenyan shillings] for each child in the family to sustain the costs of CHWs and the technology. The lowest paid individuals would be asked to contribute less than 1% of their salary per child. | | |
| **Links:**<br>26. http://healthmarketinnovations.org/program/health-care-my-fingertips-hcamf<br>27. Poster Health Care At My Fingertips: Establishing a Sustainable Health Care Model - Illeret, Turkwel & Meru, Kenya previously at http://www.whcchealthinnovations.com/poster-detail.cfm?PosterID=27 | | |
| **Education:**<br>training of CHWs, consumer education | | **Managerial:**<br>mHealth |
| **Economic:** | | **Regulatory:**<br>Pricing policy |
| **Implementers:**<br>Stony Brook University, WHCC Affordable Health Innovations, KeMU, TBI | | |
| **Stakeholders:**<br>CHWs | | |

<table>
<tr><td colspan="2">Name:<br>Health Education to Village (HETV)</td><td>Source:<br>Health Market Innovations</td></tr>
<tr><td colspan="3">Description:<br>The Health Education to Mothers program looks to prevent deaths from diarrhea and decrease child susceptibility to diarrhea by educating all health care providers and mothers about zinc supplementation and increasing the availability of zinc supplements through improved delivery channels. HETV aimed to empower mothers with knowledge about the importance, preparation, and use of ORS from the packet available for treatment of diarrhea for children.</td></tr>
<tr><td>Year:<br>2005</td><td>Country:<br>India</td><td>Target:<br>diarrhea</td></tr>
<tr><td colspan="3">Components:<br>Through focused and integrated campaigns and partnerships with local manufacturers, the aim of the program is to increase availability of zinc supplements. The program's operations are two-fold. First, it focuses on developing guidelines and training materials to educate health care providers, mothers, and the general public about zinc treatment in conjunction with oral rehydration solution. The second focus of the program is to ensure and monitor the availability of zinc supplements, create standards for quality control of zinc tablets, and develop local delivery mechanisms for distribution of the treatment.</td></tr>
<tr><td colspan="3">Links:<br>28. An integrated approach to reduce childhood mortality and morbidity due to diarrhoea and dehydration; Maharashtra, India 2005 – 2010. Available at http://hetv.org/india/mh/plan/hetvplan.pdf</td></tr>
<tr><td colspan="2">Education:<br>Consumer education</td><td>Managerial:<br>Guidelines, monitor availability of zinc supplements, standard quality control, supply distribution</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>UNICEF, USAID, Governmnet of Maharastra</td></tr>
<tr><td colspan="3">Stakeholders:<br>Healthcare providers, general public</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>Health Extension Program (HEP)</td><td>Source:<br>John Snow, Inc.</td></tr>
<tr><td colspan="3">Description:<br>The Health Extension Program (HEP) is a program to improve use of treatment for childhood diarrhea, malaria, and pneumonia in a remote district of Ethiopia. The HEP was designed to achieve significant basic health care coverage in the country over five years through the provision of a staffed health post to serve approximately 5,000 people. The aim of this new community-based health care delivery system is to improve access and equity in health care through a focus on sustained preventive health actions and increased health awareness.</td></tr>
<tr><td>Year:<br>2005</td><td>Country:<br>Ethiopia</td><td>Target:<br>diarrhea, malaria, pneumonia</td></tr>
<tr><td colspan="3">Components:<br>Every health post is staffed by two female health extension workers (HEWs), who are high school graduates with an extra one-year training course. The training program for the HEWs includes 16 major packages under 5 components: (1) hygiene and environmental sanitation (i.e., construction, usage, and maintenance of sanitary latrine), (2) family health service (i.e., family planning, vaccination), (3) disease prevention and control (i.e,. HIV, TB, malaria), (4) health education and communication, and (5) nutrition. At this level, antipyretics, oral dehydration salts and anthelminthic and antimalarial drugs are available. Voluntary health workers (VHWs) (community health workers and traditional birth attendants) support HEWs in the health education activities of the different components in the community.</td></tr>
<tr><td colspan="3">Links:<br>29. Community case management improves use of treatment for childhood diarrhea, malaria and pneumonia in a remote district of Ethiopia Ethiop. J. Health Dev. 2009;23(2) http://indexmedicus.afro.who.int/iah/fulltext/EJHD/vol%2023%20n2/Community%20case%20management%20120-126.pdf<br>30. Ethiopia's Health Extension Program: Pathfinder International's Support 2003-2007 http://www2.pathfinder.org/site/DocServer/CBRHAs__HEWs_REVISED_REPRINT__2_.pdf?docID=11303<br>31. Ethiopia's Health Extension Program: Improving Health through Community Involvement MEDICC Review, July 2011, Vol 13, No 3 http://www.medicc.org/mediccreview/articles/mr_210.pdf</td></tr>
<tr><td colspan="2">Education:<br>Training of HEWs, Consumer education</td><td>Managerial:</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>Save the Children, JSI, USAID, MoH</td></tr>
<tr><td colspan="3">Stakeholders:<br>HEWs, VHWs, MoH</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>Helping Hands Projects</td><td>Source:<br>I-CATCH</td></tr>
<tr><td colspan="3">Description:<br>I-CATCH (International Community Access to Child Health) was designed with focus on improving children's health and their access to health services, and improving newborn health by enhancing coordination among local health organizations.</td></tr>
<tr><td>Year:<br>2006-2009</td><td>Country:<br>Pakistan, Glulam Mustafa slum community</td><td>Target:<br>Child health</td></tr>
<tr><td colspan="3">Components:<br>Local women were recruited as community health workers (CHWs) and trained to teach basic health promotion, where CHWs went door-to-door educating community residents.</td></tr>
<tr><td colspan="3">Links:<br>32. Duncan et al 2012 Child Healthcare Workers in Resource-Limited Areas Improve Health with Innovative Low-Cost Projects Journal of Tropical Pediatrics, vol. 58, no. 2, http://tropej.oxfordjournals.org/content/58/2/120.abstract</td></tr>
<tr><td colspan="2">Education:<br>Training of CHWs</td><td>Managerial:</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>American Academy of Pediatrics</td></tr>
<tr><td colspan="3">Stakeholders:<br>Health care providers, urban slums</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>HEWs and the use of mobile phone tools</td><td>Source:<br>World Bank Ethiopia and Addis Ababa University</td></tr>
<tr><td colspan="3">Description:<br>The use of the health extension workers (HEWs) mobile phone tool to (1) improve antenatal care (ANC) and delivery services, (2) improve vaccination coverage, and (3) facilitate emergency referrals.</td></tr>
<tr><td>Year:<br>2010</td><td>Country:<br>Ethiopia</td><td>Target:<br>MCH</td></tr>
<tr><td colspan="3">Components:<br>Using mobile technology to aid HEWs in maternal and child health with focus on three main areas of care:<br>1. Improving ANC and delivery services<br>2. Improving vaccination coverage<br>3. Facilitating emergency referrals<br>Three different treatment groups:<br>1. All HEWs received mobile phones equipped to perform the three areas of care<br>2. All HEWs and 2 VCHWs within each kebele received mobile phones; HEW phones are software-equipped for the three areas of care<br>3. The phones distributed to the CHWs are basic phones that can only dial phone numbers. CHWs use these devices to alert HEWs with a missed call when they identify a problem<br>Results of the study are expected in early 2013.</td></tr>
<tr><td colspan="3">Links:<br>33. https://groups.google.com/forum/#!msg/ict4chw/y4EPg86DyFQ/KspfZF_jEpcJ</td></tr>
<tr><td colspan="2">Education:<br>Training of HEWs</td><td>Managerial:<br>mHealth, supervision</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>World Bank and Addis Ababa University, health centers, health post</td></tr>
<tr><td colspan="3">Stakeholders:<br>HEWs, VCHWs, health centers, health posts</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>Higa Ubeho (“Be Determined and Live”)</td><td>Source:<br>Health Market Innovations</td></tr>
<tr><td colspan="3">Description:<br>Higa Ubeho, which means “be determined and live” in Kinyarwanda, aims to increase families’ access to quality health and social services; improve household response to health and financial obstacles through economic, nutritional, and educational support; and strengthen local government and civil society capacity to provide quality health and social services to those in need.</td></tr>
<tr><td>Year:<br>2010</td><td>Country:<br>Rwanda</td><td>Target:<br>HIV and AIDS</td></tr>
<tr><td colspan="3">Components:<br>CHF is working to reduce the risk and impact of HIV and AIDS and other health problems of the most vulnerable populations in Rwanda, especially people living with HIV and AIDS (PLWHA), orphans and other vulnerable children (OVCs), and their families.The program includes a broader mandate for promoting sustainable responses to health, economic, and social challenges among OVCs, PLWHAs, and their families. In support of Government of Rwanda policies, the USAID/Higa Ubeho program consortium provides a range of community-based care and support services to children and their families. The strategic objectives of the program include: increasing vulnerable households’ access to quality health and social services; improving household resilience through economic, nutritional, and educational investments; and strengthening local government and civil society capacity for health and social service provision.</td></tr>
<tr><td colspan="3">Links:<br>34. http://www.globalcommunities.org/node/34165</td></tr>
<tr><td colspan="2">Education:<br>Consumer education</td><td>Managerial:</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>CHF International, USAID/Higa Ubeho Program</td></tr>
<tr><td colspan="3">Stakeholders:<br>PLWHA, OVCs and their families, CHWs</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>Improving Health thru the Internet</td><td>Source:<br>I-CATCH</td></tr>
<tr><td colspan="3">Description:<br>I-CATCH (International Community Access to Child Health) was designed with focus on improving children's health and their access to health services and improving newborn health by enhancing coordination among local health organizations.</td></tr>
<tr><td>Year:<br>2010-2013</td><td>Country:<br>El Salvador</td><td>Target:<br>GP</td></tr>
<tr><td colspan="3">Components:<br>Use low-cost telemedicine technology to improve access to health care for islanders through consultation with pediatricians in San Salvador</td></tr>
<tr><td colspan="3">Links:<br>35. Duncan et al 2012 Child Healthcare Workers in Resource-Limited Areas Improve Health with Innovative Low-Cost Projects Journal of Tropical Pediatrics, vol. 58, no. 2, http://tropej.oxfordjournals.org/content/58/2/120.abstract</td></tr>
<tr><td colspan="2">Education:</td><td>Managerial:<br>mHealth (telemedicine technology)</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>American Academy of Pediatrics</td></tr>
<tr><td colspan="3">Stakeholders:<br>Pediatrians</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>inSCALE Mozambique APEs</td><td>Source:<br>Malaria Consortium</td></tr>
<tr><td colspan="3">Description:<br>APEs (Agente Polivalente Elementares) are community health workers who bring the management of childhood diseases to village level and provide community-based integrated community case management (ICCM) for diarrhea, pneumonia, and malaria, focusing on the widespread use of diagnostics, appropriate treatment, and community health education.</td></tr>
<tr><td>Year:<br>2010</td><td>Country:<br>Mozambique</td><td>Target:<br>Malaria, pneumonia, diarrhea</td></tr>
<tr><td colspan="3">Components:<br>Local people step up to provide health care in their community. APES bring the management of childhood diseases to the community level. ICCM provides community-based care for diarrhea, pneumonia, and malaria through training community-based agents to diagnose and treat children.</td></tr>
<tr><td colspan="3">Links:<br>36. http://www.malariaconsortium.org/resources/publications/add-keyword/Mozambique<br>37. Mechanic to Health Worker in Three Months - published in 2011 by Malaria Consortium http://www.malariaconsortium.org/userfiles/file/INSCALE/Case%20study%20-%20Miguel%20Tomas%20APE%20-%20July%202011.pdf</td></tr>
<tr><td colspan="2">Education:<br>Training of CHWs, consumer education</td><td>Managerial:</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>Bill & Melinda Gates Foundation, London School of Hygiene and Tropical Medicine, and University College London</td></tr>
<tr><td colspan="3">Stakeholders:<br>APEs, MoH</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>inSCALE Uganda Village Health Team (VHT) volunteers</td><td>Source:<br>Malaria Consortium</td></tr>
<tr><td colspan="3">Description:<br>inSCALE aims to demonstrate that government led ICCM can be rapidly expanded without compromising on quality, leading to a sustained increase in the number of children receiving timely and appropriate treatment for diarrhea, pneumonia, and malaria.</td></tr>
<tr><td>Year:<br>2010</td><td>Country:<br>Uganda</td><td>Target:<br>Malaria, pneumonia</td></tr>
<tr><td colspan="3">Components:<br>During the course of the project, inSCALE plans to: (1) identify best practices in implementing ICCM at sub-national levels in Uganda and Mozambique; (2) identify innovations in ICCM with potential to increase coverage and improve quality through better performance and retention of community-based agents (CBAs); (3) assess the feasibility and acceptability of innovations among community members, CBAs, facility-based health workers, sub-national and national health authorities; (4) evaluate and cost the innovations, and investigate the potential for economies of scale and scope; (5) promote spread of ICCM by collaborating with ministries of health, sub-national health authorities, and other stakeholders.<br><br>In the intervention, VHTs are trained to treat sick children and provide free drugs with a well-developed instruction manual to help assess fever, a timer to assess child breathing/respiratory rate (to check for pneumonia), perform RDT for malaria, perform home visits and give basic health promotion, and restock drugs and supplies under supervision from trainer and supervisor.</td></tr>
<tr><td colspan="3">Links:<br>38. http://www.malariaconsortium.org/resources/publications/add-keyword/Uganda<br>39. http://malariaconsortium.org/soundslides/UgandaVHTstoryinscale/index.html</td></tr>
<tr><td colspan="2">Education:<br>Training of CHWs, Consumer education</td><td>Managerial:<br>System to restock on drugs and supplies, location of VHT for proximity of care/treatment</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:<br>Free drug supplies; pricing policy</td></tr>
<tr><td colspan="3">Implementers:<br>Bill & Melinda Gates Foundation, London School of Hygiene and Tropical Medicine, and University College London</td></tr>
<tr><td colspan="3">Stakeholders:<br>VHTs, MoH</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>Karra Society for Rural Action - Referral Networks in Jharkhand</td><td>Source:<br>Health Market Innovations</td></tr>
<tr><td colspan="3">Description:<br>The Karra Society for Rural Action, in partnership with the Government of Jharkhand and district healthcare facilities, established a referral network in six blocks of Kunti District in Jharkhand.</td></tr>
<tr><td>Year:<br>2008</td><td>Country:<br>India,Kunthi</td><td>Target:<br>MCH</td></tr>
<tr><td colspan="3">Components:<br>The Karra Society initiated the establishment of quality referral services for obstetric and infant healthcare facilities in 320 villages of 6 blocks in the Kunti district. The project's objective is to create a pool of village health volunteers (VHVs) with awareness regarding reproductive and child health, increase safe births by facilitating institutional deliveries, and encourage community ownership by establishing a call center in each block for instant access to referrals. The Society has engaged in community mobilization for health by strengthening self-help groups (SHGs), creating a health fund to be used in case of emergencies, establishing a call center available 24 hours a day, 7 days a week in each block, and providing transport vehicles for all villages networked to facilitate quick referrals. Furthermore, trainings are conducted for traditional birth attendants, SHGs, and sahiyya (individuals who educate pregnant women in rural areas). Awareness sessions are also conducted for future mothers on proper precautions to take during pregnancy. The government also partners with the Karra Society and UNICEF to support the design and development of this model.</td></tr>
<tr><td colspan="3">Links:<br>40. http://healthmarketinnovations.org/program/karra-society-rural-action-referral-networks-jharkhand</td></tr>
<tr><td colspan="2">Education:<br>Training of VHVs, traditional birth attendants, SHGs and sahiyya</td><td>Managerial:<br>Organizing service delivery</td></tr>
<tr><td colspan="2">Economic:<br>Contracting</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>UNICEF, Karra Society</td></tr>
<tr><td colspan="3">Stakeholders:<br>District health facilities, VHVs, traditional birth attendants, SHGs, and sahiyya</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>Kayunga Newborn Project</td><td>Source:<br>I-CATCH</td></tr>
<tr><td colspan="3">Description:<br>I-CATCH (International Community Access to Child Health) was designed with focus on improving children's health and their access to health services, and improving newborn health by enhancing coordination among local health organizations.</td></tr>
<tr><td>Year:<br>2006-2009</td><td>Country:<br>Uganda, Kayunga district</td><td>Target:<br>Neonatal infections</td></tr>
<tr><td colspan="3">Components:<br>Collaboration among multiple agencies working towards a common goal on improving newborn care. Formal meetings were helod among all partners to facilitate strategy making: traditional birth attendants and private midwives planned together, community sensitivities were aired, and community leaders evaluated the progress.<br>• Technical support from health volunteers overseas<br>• The Church of Jesus Christ of Latter-Day-Saints trained 43 new health workers in neonatal resuscitation and provided training equipment to health facilities and to the Private Midwives Association.</td></tr>
<tr><td colspan="3">Links:<br>41. Duncan et al 2012 Child Healthcare Workers in Resource-Limited AreasImprove Health with Innovative Low-Cost Projects Journal of Tropical Pediatrics, vol. 58, no. 2, http://tropej.oxfordjournals.org/content/58/2/120.abstract</td></tr>
<tr><td colspan="2">Education:<br>Training of providers</td><td>Managerial:</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>American Academy of Pediatrics</td></tr>
<tr><td colspan="3">Stakeholders:<br>Health care providers, local health organizaitons</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>Kuraneza (Good Growth)</td><td>Source:<br>Health Market Innovations</td></tr>
<tr><td colspan="3">Description:<br>The Kuraneza, a public- private partnership, aims to support the government's efforts to operationalize the integration of three newly developed policies—the Community Health Policy, National Nutrition Policy, and Early Child Development Policy—by strategically integrating interventions related to maternal and newborn care (MNC), nutrition, and case management of diarrhea and pneumonia into an existing early childhood development (ECD) program that organizes all mothers, including those in the lowest wealth quintile, into support groups.</td></tr>
<tr><td>Year:<br>2010-2014</td><td>Country:<br>Rawanda</td><td>Target:<br>MCH, nutrition, GP</td></tr>
<tr><td colspan="3">Components:<br>CARE was awarded an innovation category grant to implement the Kuraneza Child Survival Project in collaboration with the district's unit of Social Affairs and Social Development. CARE is supporting the government's efforts to operationalize the integration of three newly developed policies—the Community Health Policy, National Nutrition Policy, and Early Child Development Policy—by strategically integrating interventions related to MNC, nutrition, and case management of diarrhea and pneumonia into an ECD program that organizes all mothers, including those in the lowest wealth quintile, into support groups.<br>The Kuraneza project's operations research component is designed to determine whether an integrated child survival-ECD model enhances health outcomes, particularly for the poorest and most difficult to reach communities and households. CARE, in collaboration with Tulane University, will implement and evaluate this integration model, which is also supported by community health workers (CHWs) under the Government's CHW strategy to improve maternal newborn and child health and child development outcomes as well as reduce health inequalities between the poor and rich.</td></tr>
<tr><td colspan="3">Links:<br>42. http://healthmarketinnovations.org/program/kuraneza-program</td></tr>
<tr><td colspan="2">Education:<br>Consumer education</td><td>Managerial:</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:<br>Policy/legislation</td></tr>
<tr><td colspan="3">Implementers:<br>CARE international, Tulane University, Ministry of Rwanda</td></tr>
<tr><td colspan="3">Stakeholders:<br>CHWs</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>Lakbay Buhay Kalusugan (LBK) Caravan</td><td>Source:<br>Health Market Innovations</td></tr>
<tr><td colspan="3">Description:<br>LBK is a mobile health caravan with consultation and examination clinics that focus on maternal and child care. LBK aims to bring health information and reach the most disadvantaged people in far-flung areas through a mobile health clinic.</td></tr>
<tr><td>Year:<br>2011</td><td>Country:<br>Philippines</td><td>Target:<br>MCH</td></tr>
<tr><td colspan="3">Components:<br>The LBK Caravan is a mobile clinic that provides services such as maternal and child health care and counseling services. For every stop, interactive health exhibits, videoke concert, storytelling sessions and other fun activities are held. This is a DOH-led initiative with technical assistance from the USAID Health Promotion and Communication Project (HealthPRO). This is one of the pilot programs of the DOH in line with the administration's campaign for universal health coverage through public-private partnership. This project was put up with the help of private institutions. Victory Liner Bus Lines donated the bus that serves as the mobile clinic. OMF Literature provided the books for story telling sessions. Various media outfits provided the publicity to inform the target beneficiaries as well as to attract potential donors for succeeding years.</td></tr>
<tr><td colspan="3">Links:<br>43. http://healthmarketinnovations.org/program/lakbay-buhay-kalusugan-lbk-caravan</td></tr>
<tr><td colspan="2">Education:<br>Consumer education</td><td>Managerial:<br>mHealth</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>National Center for Health Promotion-DOH, Provincial and Municipal Health Offices, HealthPRO, PhilHealth</td></tr>
<tr><td colspan="3">Stakeholders:<br>Provincial and municipal health offices</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>Mahila Swashta Sewa network (MSS)</td><td>Source:<br>Health Market Innovations</td></tr>
<tr><td colspan="3">Description:<br>The MSS network is a fractional franchise of 173 health providers in Nepal that provide a variety of family planning/reproductive health and maternal and child care services. MSS is a central strategy of PSI Nepal to improve the quality of care in the private sector and to expand the impact of MCH programs in the country. PSI Nepal supports other healthcare networks including the public sector, NGOs, and commercial sector in Nepal (SuperNetwork).</td></tr>
<tr><td>Year:<br>2009</td><td>Country:<br>Nepal</td><td>Target:<br>MCH, family planning & reproductive health, TB, malaria</td></tr>
<tr><td colspan="3">Components:<br>MSS is a network of 300 clinics in 45 of the 75 Nepal districts. Each clinic is staffed by 1-2 assistant nurse midwives (ANMs). MSS providers are given a wide range of training, monitoring, and support tools to improve their clinics. PSI works with a network of local women and NGOs to conduct mobilization and outreach in the communities surrounding the MSS clinics through a group of local women (DIDIs). The DIDIs implement interactive group sessions, individual outreach, and provide special services at the MSS clinics. The DIDIs supporting the outreach activities are paid a nominal monthly stipend for their work. Services provided at the MSS clinics include a variety of contraceptives and sexually transmitted infection (STI) treatment, and there are plans to expand services to antenatal care (ANC), labor and delivery, emergency obstetric care, post-natal care, vaccinations, malaria and TB testing/treatment, and diarrheal disease treatment. To expand access and choice to long-term methods, PSI hosts clinic support days to give providers the opportunity to refine their practical and counseling skills in intrauterine device (IUD) and implant insertions and counseling. Additionally, by linking clinical support days to an MSS provider, PSI Nepal can ensure that procedures for managing complications are permanently remembered and utilized, if necessary, by senior nurses.</td></tr>
<tr><td colspan="3">Links:<br>44. http://healthmarketinnovations.org/program/mahila-swhastha-sewa</td></tr>
<tr><td colspan="2">Education:<br>Consumer education, training of providers</td><td>Managerial:<br>mHealth, franchise</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>PSI, government of Nepal</td></tr>
<tr><td colspan="3">Stakeholders:<br>ANMs, groups of local women (DIDIs)</td></tr>
</table>

| **Name:**<br>Merrygold Health Network | | **Source:**<br>Health Market Innovations |
|---|---|---|
| **Description:**<br>Merrygold Health Network aims at creating access to low cost good quality maternal and child health (MCH) services by networking with private health service providers as franchisees. | | |
| **Year:**<br>2007 | **Country:**<br>India | **Target:**<br>MCH, family planning, reproductive health |
| **Components:**<br>The project has a hub and spoke design with level 1 franchisees (Merrygold) established at district levels as the hub connected to levels 2 and 3. Level 2 comprises fractional franchisees (Merrysilver) established at subdivision and block level. Level 3 (merryAYUSH) comprises providers like auxiliary nurse midwives (ANMs), ASHA workers and AYUSH, and acts as the first point of contact with the community. Level 3 also provides referral support to Merrysilver and MerryGold hospitals. Emphasis is on affordable pricing, quality assurance, customer service, and efficient service delivery through standardized operating protocols. It also established the Hospital Management Information System (HMIS). A team of public health and clinical professionals facilitates capacity building and quality assurance. Integrated health insurance policy for coverage of risk during maternity has been introduced; a branded pharmacy and chain of diagnostic facilities is also being strategized. State government has accredited Merrygold hospitals for Janani Suraksha Yojana and Sowbhagyavati Scheme to provide free RCH services and emergency obstetric care. The franchise targets the low-income population, migrants/refugees, and women and children of Uttar Pradesh. | | |
| **Links:**<br>45. http://healthmarketinnovations.org/program/merrygold-health-network | | |
| **Education:** | | **Managerial:**<br>Franchise, STG |
| **Economic:**<br>Private health insurance | | **Regulatory:**<br>Policy/legislation |
| **Implementers:**<br>Hindustan Latex Family Planning Promotion Trust (HLFPPT) | | |
| **Stakeholders:**<br>Private health service providers, public health and clinical professionals | | |

<table>
<tr><td colspan="2">Name:<br>Mobile Technology for Community Health (MoTeCH)</td><td>Source:<br>Health Market Innovations</td></tr>
<tr><td colspan="3">Description:<br>MoTeCH uses mobile phone technology to improve health outcomes for mothers and their newborns in rural Ghana. The initiative was designed in an effort to bridge the gap between community health workers and patients.</td></tr>
<tr><td>Year:<br>2010</td><td>Country:<br>Ghana</td><td>Target:<br>MCH</td></tr>
<tr><td colspan="3">Components:<br>MoTeCH is comprised of two interrelated services. The “mobile midwife” application enables pregnant women and their families to receive SMS or pre-recorded voice messages on personal mobile phones that provide time-specific information about their pregnancy each week in their own language (99% have chosen voice). The messages continue through the first year of life for the newborn and reinforce well-child care practices and vaccination schedules. There is also a “nurse application” that enables community health nurses to electronically record care given to patients and identify women and newborns in their area that are due for care. The two components are linked so that if a patient has missed treatment that is part of the defined care schedule, the Mobile Midwife service sends a message to remind the patient to go to the clinic for that particular service and the nurse is also informed that the patient is due for treatment.</td></tr>
<tr><td colspan="3">Links:<br>46. http://healthmarketinnovations.org/program/mobile-technology-community-health-motech<br>47. http://www.nextbillion.net/blogpost.aspx?blogid=2347</td></tr>
<tr><td colspan="2">Education:<br>Consumer education</td><td>Managerial:<br>mHealth</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>Grameen Foundation, Mailman School of Public Health, Ghana Health Service</td></tr>
<tr><td colspan="3">Stakeholders:<br>Community health nurses</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>Mobilize Against Malaria (MAM)</td><td>Source:<br>ICIUM 2011</td></tr>
<tr><td colspan="3">Description:<br>In the MAM Project, the Ghana Social Marketing Foundation and Family Health International (Family Health 360) aim to improve the availability of ART stocked by licensed chemical sellers (LCSs), knowledge of treatment of malaria in children <5 years, and referral practices.</td></tr>
<tr><td>Year:<br>2008-2011</td><td>Country:<br>Ghana, Ashanti Region</td><td>Target:<br>Malaria</td></tr>
<tr><td colspan="3">Components:<br>MAM involves 7 modules for LCS training:<br>• Module 1: Mobilize Against Malaria<br>• Module 2: Malaria Control and Prevention<br>• Module 3: Skills for Dispensing Medicines<br>• Module 4: Malaria Symptom Recognition<br>• Module 5: Malaria Drug Treatment<br>• Module 6: Referral and Record Keeping<br>• Module 7: Client Care and Messaging</td></tr>
<tr><td colspan="3">Links:<br>48. http://www.inrud.org/ICIUM/ConferenceMaterials/1081-ofori-adjei-_a.pdf#search=%22Improve%20access%20to%20ACTs%20through%20license%20drug%20sellers%22</td></tr>
<tr><td colspan="2">Education:<br>Consumer education, Provider training</td><td>Managerial:<br>Distribution channel thru LCS</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>Pfizer, Family 360, LCS Association</td></tr>
<tr><td colspan="3">Stakeholders:<br>Rural drug vendors, PMVs, graphic artists,</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>Mozambique community-based IMCI</td><td>Source:<br>Transactions of the Royal Society of Tropical Medicine & Hygiene</td></tr>
<tr><td colspan="3">Description:<br>The program, which uses “care groups” to implement programs based on the community Integrated Management of Childhood Illness model, has demonstrated improvements in care-seeking behaviors and utilization of health services.</td></tr>
<tr><td>Year:<br>1999-2003</td><td>Country:<br>Mozambique, Gaza province</td><td>Target:<br>Child health</td></tr>
<tr><td colspan="3">Components:<br>The objectives of the program are to improve equitable and universal coverage, and institute a community-based vital registration and health information system for routine surveillance of births, death, and childhood illnesses. Each care group consists of 10-15 volunteers who were trained through culturally appropriate methods of instruction (drama, song, role play, etc.). Each volunteer was assigned to ten of her neighboring households and conducted monthly home visits to provide health education for the caretaker and to register vital events.</td></tr>
<tr><td colspan="3">Links:<br>49. Examining the evidence of under-five mortality reduction in a community-based programme in Gaza, Mozambique. Edward A et al Trans. Roy. Soc. Trop. Med. Hyg. (2007) http://www.coregroup.org/storage/documents/Diffusion_of_Innovation/edward-mozambique-2007.pdf</td></tr>
<tr><td colspan="2">Education:<br>Training of care groups</td><td>Managerial:<br>Routine surveillance</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>DHS, MoH, village health committee, health post</td></tr>
<tr><td colspan="3">Stakeholders:<br>MoH, CHWs, care groups, health posts, health centers</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>mVAC-Mobile</td><td>Source:<br>Forskningsradet</td></tr>
<tr><td colspan="3">Description:<br>A three-year project to develop a mobile phone-based solution that allows health workers equipped with a low-cost, Java-enabled mobile phone with an integrated camera to record and register individual immunizations administered and to submit this data to a central vaccination registry. As a result, countries will be able to manage immunization programs with increased accuracy and reliability.</td></tr>
<tr><td>Year:<br>1/2010-6/2013</td><td>Country:<br>Uganda</td><td>Target:<br>Child health</td></tr>
<tr><td colspan="3">Components:<br>The project uses an open-source software package called openXdata that allows users to create their own forms on a web-based interface and deploy that to mobile phones or devices. The researchers propose to use a child health card equipped with a 2-dimensional barcode (datamatrix) as the primary proxy (identifier) for a child, rather than personal ID numbers. Using the camera on the phone to scan the card on each visit, health workers will be able to collect individualized data on vaccines administered and to see a list of immunization tasks scheduled for that particular child. When the immunization is given, the health worker documents it on the mobile phone and on the card and digitally signs the encounter. When the system is fully operational, the registry can generate lists of children in specific catchment areas who are overdue for vaccination. The system can send automated short message service text messages with reminders to parents that have signed up for this feature. At the central level, the immunization registry allows the supply chain management system to deliver exactly the right amount and kind of vaccines to each individual facility based on monthly consumption data. Development of mVAC combines the health and information technology expertise from several different systems (EpiHandy, JavaROSA, OpenMRS, WHO Anthro, MobileHRS, IRD Client).</td></tr>
<tr><td colspan="3">Links:<br>50. http://www.forskningsradet.no/servlet/Satellite?c=Page&pagename=ForskningsradetEngelsk%2FHovedsidemal&cid=1179127750262&querystring=MVac+Uganda&spell=true&filters=langcodes%2Cen&isglobalsearch=true&configuration=nfrsearchersppublished</td></tr>
<tr><td colspan="2">Education:</td><td>Managerial:<br>mHealth</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>Optimize-WHO/PATH</td></tr>
<tr><td colspan="3">Stakeholders:<br>Primary health care workers</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>Nacer</td><td>Source:<br>Health Market Innovations</td></tr>
<tr><td colspan="3">Description:<br>Nacer is a phone- and web-based information and communication system for maternal and child health that allows health professionals in remote locations to communicate and exchange critical health information with regional medical experts.</td></tr>
<tr><td>Year:<br>No reported</td><td>Country:<br>Peru, Ucayali</td><td>Target:<br>Child health</td></tr>
<tr><td colspan="3">Components:<br>Improving data management, data collection, facilitating patient communications, protecting patient privacy.</td></tr>
<tr><td colspan="3">Links:<br>51. http://healthmarketinnovations.org/program/nacer</td></tr>
<tr><td colspan="2">Education:</td><td>Managerial:<br>mHealth</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>Vioxx company, MoH, Regional Health Directorate of Ucayali</td></tr>
<tr><td colspan="3">Stakeholders:<br>Healthcare workers</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>Novartis MMV Public-Private Partnership</td><td>Source:<br>IFPMA</td></tr>
<tr><td colspan="3">Description:<br>Novartis's project focused on the supply of medicines in the public sector of 34 developing countries thru prepackaged blister packets of antimalarials for CCM of malaria</td></tr>
<tr><td>Year:<br>2001</td><td>Country:<br>34 developing countries, including Rwanda</td><td>Target:<br>Malaria</td></tr>
<tr><td colspan="3">Components:<br>Coartem® is the first World Health Organization-prequalified fixed dose, artemisinin-based combination therapy (ACT) antimalarial, approved by stringent regulatory authorities and on the WHO Model List of Essential Medicines. Coartem is fast-acting and cures over 97% of patients after a 3-day treatment course. Since 2001, Novartis has provided more than 300 million treatment courses of Coartem-without profit-for public sector use in Africa. These treatments have helped save an estimated 750,000 lives in more than 60 malaria-endemic countries. Coartem Dispersible (introduced in 2009) was the first ACT developed especially for children with malaria. The packaging was designed to aid patient compliance, thanks to clear separation per body weight, the availability of one full treatment course on the same blister, and clear pictorial instructions. Health facilities and CHWs use the same packaged medicines; each treatment dose packet is color-coded for the appropriate age group (red for children 0-35 months with a picture of a younger child, yellow for children 36-59 months with a picture of an older child). Also developed color codes or drawings if the caregiver and CHW cannot read or write; an alternative strategy is to use color codes and drawing for the prescription of medicines.</td></tr>
<tr><td colspan="3">Links:<br>52. http://www.ifpma.org/fileadmin/content/Publication/IFPMA_Woman___Child_Health_Partnerships_2011.pdf<br>53. http://www.coregroup.org/storage/documents/CCM/CCMbook-internet2.pdf</td></tr>
<tr><td colspan="2">Education:<br>Training of CHWs, consumer education</td><td>Managerial:<br>Prepackaged medicines, color coded training package</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:<br>Pricing policy</td></tr>
<tr><td colspan="3">Implementers:<br>WHO, MMV, Novartis</td></tr>
<tr><td colspan="3">Stakeholders:<br>Healthcare workers, caregivers</td></tr>
</table>

| **Name:**<br>Nutrition and Tuberculosis Control Program for Children | | **Source:**<br>Health Market Innovations |
|---|---|---|
| **Description:**<br>The International Centre for Diarrhoeal Disease Research (ICDDR-B) Nutrition Programme has started a health systems-based approach to the detection of childhood TB cases in the Tangail district of Bangladesh. The project aims to create a network of community health workers (CHWs) and village doctors to effectively detect and treat TB in children. | | |
| **Year:**<br>2008 | **Country:**<br>Bangladesh | **Target:**<br>MCH,TB |
| **Components:**<br>The 2-year project aims to screen all children up to 14 years of age in two of Tangail's sub-districts. Cured adult TB patients have been engaged as CHWs and act as 'TB ambassadors.' They not only screen children for symptoms but also create awareness within the community at periodic intervals on cause, prevention, symptoms, and treatment of the disease. The community screening of children is based on four questions asked by the CHWs: (1) Are other members of the household suffering from TB? (2) Has the fever lasted for more than 7 days? (3) Has the cough lasted for more than two weeks? (4) Is the child less active compared to children of similar age? Children having two or more 'yes' answers to the four questions are then escorted by the CHW to the TB clinic at the sub-district health complex. A doctor examines the child and uses the WHO algorithm to diagnose TB. Once diagnosed, the child is enrolled for treatment under the directly observed treatment-short course per the national guidelines for management of TB. The village doctors, trained appropriately under the project, dispense the medicines to the children. | | |
| **Links:**<br>54. http://healthmarketinnovations.org/program/nutrition-and-tuberculosis-control-program-children | | |
| **Education:**<br>Consumer education, training of CHWs | | **Managerial:**<br>STG, service delivery |
| **Economic:** | | **Regulatory:** |
| **Implementers:**<br>International Centre for Diarrhoeal Disease Research (ICDDR), Damien Foundation | | |
| **Stakeholders:**<br>CHWs, village doctors | | |

<table>
<tr><td colspan="2">Name:<br>P4P for primary health care providers</td><td>Source:<br>The Lancet</td></tr>
<tr><td colspan="3">Description:<br>Use performance-based payment of health care providers (P4P) to improve use and quality of child and maternal care services in health-care facilities.</td></tr>
<tr><td>Year:<br>6/2010-10/2010</td><td>Country:<br>Rwanda</td><td>Target:<br>MCH</td></tr>
<tr><td colspan="3">Components:<br>Randomly assigned at the district level to begin P4P funding either in June 2006 or in October 2006<br>• Main outcome measures were prenatal care visits and institutional deliveries, quality of prenatal care, and child preventive care visits and immunization<br>• On average, facilities with P4P intervention allocated 77% of the P4P funds to increase personnel compensation, amounting to a 38% increase in staff salaries</td></tr>
<tr><td colspan="3">Links:<br>55. http://www.ncbi.nlm.nih.gov/pubmed/21515164</td></tr>
<tr><td colspan="2">Education:</td><td>Managerial:</td></tr>
<tr><td colspan="2">Economic:<br>P4P</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>World Bank, British Economic and Social Research Council, Government of Rwanda, Global Development Network</td></tr>
<tr><td colspan="3">Stakeholders:<br>Government of Rwanda</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>PEDPACT project</td><td>Source:<br>Health Market Innovations</td></tr>
<tr><td colspan="3">Description:<br>Kijani Trust and Gertrude's Children's hospital have created the PEDPACT project to bring expert care and treatment to children living in hard-to-reach areas of the Laikipia East District.</td></tr>
<tr><td>Year:<br>2008</td><td>Country:<br>Kenya</td><td>Target:<br>GP</td></tr>
<tr><td colspan="3">Components:<br>PEDPACT targets families in hard to reach and poverty stricken areas, using the existing local structures to improve health indicators and scale up the services offered by the Ministry of Health (MOH). The project servcies include: (1) a doctor and pediatrician from Gertrude's offer outreach clinics in rural, hard-to-reach community health facilities in conjunction with the MoH to supplement the care offered by the district nurses and CHWs in the clinics; (2) developing a comprehensive care center (CCC) at District Hospital and Cottage Hospital in Nanyuki by building up the infrastructure (including building play areas for the children) and purchasing needed lab equipment; (3) operating training programs, continual medical education workshops, and a mentorship program to develop the skills of the health staff based in District Hospital and MoH clinics and dispensaries; (4) empowering the community to create a demand for quality services; (5) implemented a triage system where local healthcare providers attend to less severe cases and refer more complicated cases to the district hospitals (this has improved efficiency as patients spend less time at the outreach clinics and are able to go back to other activities); (6) seeing patients for free, with support from the Kijani Trust. Out-of-pocket costs to patients are reduced due to increased accessibility of care (services are provided closer to them). The cost of delivery is also reduced due to the high patient-volumes and greater staff productivity.</td></tr>
<tr><td colspan="3">Links:<br>56. http://healthmarketinnovations.org/program/pedpact-project<br>57. Pedpact Activities Monitoring and Evaluation Report April 2011<br>58. http://www.kijanikenyatrust.org/en/what-we-do/health/</td></tr>
<tr><td colspan="2">Education:<br>Consumer education, Provider training</td><td>Managerial:<br>mHealth, service delivery</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:<br>Policy/legislation</td></tr>
<tr><td colspan="3">Implementers:<br>Kijani Kenya Trust and Gertrude's Children's Hospital; Ministry of Health; Caritas; Collier Trust; Community Health Africa</td></tr>
<tr><td colspan="3">Stakeholders:<br>CHWs, CCCs, MoH</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>Pesinet</td><td>Source:<br>Health Market Innovations</td></tr>
<tr><td colspan="3">Description:<br>Pesinet's mission is to sustainably reduce child mortality by facilitating access to existing healthcare systems thru partnernship with local health structures (CSComs). Pesinet designs and deploys innovative services targeting children and their mothers: regular home-based health monitoring, health insurance, education in prevention, simple mobile technologies to enable remote monitoring by the local doctor and facilitate early access to basic medical care. They are designed to be economically sustainable while remaining affordable to low-income populations.</td></tr>
<tr><td>Year:<br>2008</td><td>Country:<br>Mali</td><td>Target:<br>MCH, GP</td></tr>
<tr><td colspan="3">Components:<br>By addressing the issue from the demand perspective and reconnecting people with healthcare structures, Pesinet aims at generating a systemic change in the healthcare situation of sub-Saharan countries. Pesinet is working towards a double impact that will create the necessary conditions for sustainable change in the healthcare situation of the countries where it works: (1) impact on populations: increased access to care; reduced delay in receiving healthcare when the child is sick; improved education on prevention and key health practices; (2) impact on health systems: increased activity at primary-care level, increased revenues for community health centers; improved capacity to deliver quality services. Every week, Pesinet's agents visit children at home and collect simple health data (weight, fever, stools, etc.). They also provide nutritional information and illness prevention advice.The collected data are stored on a Java applet in the agents' mobile phones and transferred to the doctor of the partnering CSCom via mobile technologies. Every day, the doctor reviews the data on a web interface at the healthcare facility, identifies children at risk, and indicates those that he would like to see. When children are called in by the doctor, families are prompted to go to the health centre by the Pesinet agent. Pesinet covers the full cost of the doctor's examination and half of the cost of the medication. Agents also organize monthly gatherings of mothers to discuss program and health issues.</td></tr>
<tr><td colspan="3">Links:<br>59. http://healthmarketinnovations.org/program/pesinet</td></tr>
<tr><td colspan="2">Education:<br>Consumer education</td><td>Managerial:<br>mHealth, information technology, service delivery chain, STG, transportation system, remote monitorting</td></tr>
<tr><td colspan="2">Economic:<br>Micro/community health insurance</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>Association Pesinet, FENASCOM, MoH</td></tr>
<tr><td colspan="3">Stakeholders:<br>Local health structures (CSComs), agents</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>Project Mwana</td><td>Source:<br>Project Mwana</td></tr>
<tr><td colspan="3">Description:<br>A pilot project to use a RapidSMS based mobile health system to deliver the EID (early infant diagnosis) results from reference labs back to the facility using SMS.</td></tr>
<tr><td>Year:<br>7/1/2010-2/15/2011</td><td>Country:<br>Zambia</td><td>Target:<br>Pediatric HIV</td></tr>
<tr><td colspan="3">Components:<br>Programme Mwana's SMS systems, called Results160 and RemindMi, are built on RapidSMS, an open-source framework for designing SMS-based projects. SMS was ultimately their best choice for creating an affordable, scalable system compared to Android/JAVA solutions. RapidSMS based mHealth helps improve the efficacy of the SMS system by speeding up the delivery of EID results from reference labs back to facility.</td></tr>
<tr><td colspan="3">Links:<br>60. http://www.unicef.org/innovations/index_61210.html<br>61. Project Mwana: Using mobile technology to improve early infant diagnosis of HIV, UNICEF Zambia. http://www.unicef.org/partners/Partnership_profile_2012_Mwana_Zambia_V2_approved.pdf</td></tr>
<tr><td colspan="2">Education:</td><td>Managerial:<br>mHealth</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>UNICEF, CHAI, BUSPH</td></tr>
<tr><td colspan="3">Stakeholders:<br>Rural health facilities, reference labs</td></tr>
</table>

| **Name:**<br>Public Health and Malaria Control (PHMC) Integrated Program | | **Source:**<br>Health Market Innovations |
|---|---|---|
| **Description:**<br>The malaria control program targets several neighborhoods in Mimika, which is home to many PTFI employees. The program also serves the communities that were relocated by PTFI during the construction phase of the local mine. | | |
| **Year:**<br>2008 | **Country:**<br>Indonesia | **Target:**<br>Malaria |
| **Components:**<br>The malaria control program targets several neighborhoods in Mimika, which is home to many PTFI employees. The program also serves the communities that were relocated by PTFI during the construction phase of the local mine. In addition to increasing access to the new locations, PHMC also incorporated a combination of program initiatives. The program includes activities such as malaria education, indoor residual spraying (IRS), long-lasting net distribution, blood sampling analysis (RDT and microscopic), medicine posts, malaria medicine research (ACT), capacity building for local community health centers, an integrated data and information systems among health providers, and using strong monitoring and evaluation methods to improve the performance of the program. PHMC also encourages strong community and government participation. By involving the Timkeskam village health team (VHT) in program activities, community members are trained and empowered to execute the activities for malaria management independently. PHMC supports RSMM and RSWB (Waa Banti) public hospitals and clinics in malaria diagnosis and treatment. On average, RSMM provides services and medication to around 20,000 patients annually, both outpatient services as well as hospitalization for serious malaria patients with complications. In addition, the program has trained microscopic malaria analysts at the hospitals and conducted research on appropriate malaria drugs for the area. | | |
| **Links:**<br>62. http://healthmarketinnovations.org/program/public-health-and-malaria-control-phmc-integrated-program | | |
| **Education:**<br>Consumer education, provider training, training of community members | | **Managerial:**<br>Innovative operational process |
| **Economic:** | | **Regulatory:** |
| **Implementers:**<br>PTFI, LPMAK, or in English, the Amungme and Kamoro Community Development Organizations,YCT, YCII, PHMC | | |
| **Stakeholders:**<br>VHTs, local governments | | |

<table>
<tr><td colspan="2">Name:<br>RapidSMS</td><td>Source:<br>Health Market Innovations</td></tr>
<tr><td colspan="3">Description:<br>The Rwandan RapidSMS application has been designed specifically to support maternal, neonatal, and early child health at the community level and to save mothers and newborn lives.</td></tr>
<tr><td>Year:<br>2009</td><td>Country:<br>Rwanda</td><td>Target:<br>Family planning & reproductive health</td></tr>
<tr><td colspan="3">Components:<br>The program's intentions are to be a free and open-source framework for dynamic data collection, logistics coordination, and communication. It should not just be a simple data reporting or alert tool, but rather it is designed to allow two-way flow of information through automated feedback loops with robust data analysis and messaging sent back to end-users. The Rwanda RapidSMS application was designed specifically to support maternal, neonatal, and early child health at the community level by introducing tools to help CHWs track pregnant women under their care. In addition, RapidSMS assists CHWs to monitor antenatal care, identify and refer women at risk, and improve communication with health facility and district level facilities in the case of emergencies. Through situation specific and monthly aggregated feedback loops, the system was also intended to help CHWs proactively identify and address reasons women and young children die at the community level and suggest possible interventions.</td></tr>
<tr><td colspan="3">Links:<br>63. http://healthmarketinnovations.org/program/rapidsms-rwanda</td></tr>
<tr><td colspan="2">Education:</td><td>Managerial:<br>mHealth</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>UNICEF, WHO, Voxiva,TracPluc, UNICEF Rwanda</td></tr>
<tr><td colspan="3">Stakeholders:<br>MoH, CHWs</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>Sanofi-Aventis Impact Malaria Public-Private Partnership</td><td>Source:<br>IFPMA</td></tr>
<tr><td colspan="3">Description:<br>Sanofi-Aventis is researching new treatments that are affordable, adapted to patients´ needs, especially children, and can help circumvent growing resistance to existing medicines. This program aims to include over 20,000 patients and was formalized as a risk management plan, the first to be submitted to WHO to help local NGOs train health workers to educate communities about malaria.</td></tr>
<tr><td>Year:<br>2001</td><td>Country:<br>Benin, Burkina Faso, Côte d’Ivoire, Ghana, Republic of Congo</td><td>Target:<br>Malaria</td></tr>
<tr><td colspan="3">Components:<br>Sanofi-Aventis seeks to improve access to its antimalarials by making them available at “no profit, no loss” prices to needy populations. The company has relinquished its patents and committed to supply its antimalarial medicines at prices scaled to income. In the poorest countries, this is less than USD 1 for an adult treatment and a less than USD 0.5 for a pediatric one. In 2009, Sanofi-Aventis provided over 20 African health professionals with high-level malaria training. In addition, information, education and communication tools and training sessions have been developed with national malaria control programs and NGOs.</td></tr>
<tr><td colspan="3">Links:<br>64. http://www.ifpma.org/fileadmin/content/Publication/IFPMA_Woman___Child_Health_Partnerships_2011.pdf</td></tr>
<tr><td colspan="2">Education:<br>Consumer education, training of health professionals</td><td>Managerial:</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:<br>Pricing policy</td></tr>
<tr><td colspan="3">Implementers:<br>Sanofi- aventis, WHO, DNDi</td></tr>
<tr><td colspan="3">Stakeholders:<br>Health professionals</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>Scaling up of zinc in early childhood (SUZY) project</td><td>Source:<br>Oxford Journals</td></tr>
<tr><td colspan="3">Description:<br>SUZY aims to scale up Zinc treatment for childhood diarrhea as an adjunct to ORS (oral rehydration solution).</td></tr>
<tr><td>Year:<br>2003</td><td>Country:<br>Bangladesh</td><td>Target:<br>diarrhea</td></tr>
<tr><td colspan="3">Components:<br>The project was guided by social marketing frameworks applied to create a demand for zinc treatment and to change specific health behaviors. The targeted behaviors included treating childhood diarrhea with zinc, giving zinc for 10 days (beyond the period of observed cure), and continued use of ORS. The project also aimed to increase awareness of zinc treatment and educate parents about its benefits and correct use in a manner that did not lead to disparities in practice based upon household wealth or location. This included reaching out to urban poor and rural households.</td></tr>
<tr><td colspan="3">Links:<br>65. Scaling up zinc treatment of childhood diarrhoea in Bangladesh: theoretical and practical considerations guiding the SUZY Project. Larson C.P et al Health Policy Plan. 2012 Mar;27(2):102-14. http://www.ncbi.nlm.nih.gov/pubmed/21343236</td></tr>
<tr><td colspan="2">Education:<br>Consumer education</td><td>Managerial:</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>ICDDR,B, MoH in Bangladesh, MOHFW, private sector</td></tr>
<tr><td colspan="3">Stakeholders:<br>Private sector, MoH, health providers, lkocal pharmaceutical laboratory, marketing agency</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>Sehat Sahulat Card (SSC): Health Facilities Card</td><td>Source:<br>Health Market Innovations</td></tr>
<tr><td colspan="3">Description:<br>SSC, or Health Facilities Card, is an innovative public-private partnership model between the district governments of Kasur and Rawalpindi and Contech International. It is a voucher scheme that increases accessibility to quality maternal, newborn, and child health (MNCH) services to expectant mothers from disadvantaged backgrounds.</td></tr>
<tr><td>Year:<br>2009</td><td>Country:<br>Pakistan, Kasur & Rawalpindi</td><td>Target:<br>MCH, family planning, reproductive health</td></tr>
<tr><td colspan="3">Components:<br>The main objective of the program is to provide improved health coverage and quality MNCH services through social safety net mechanisms to women and newborns living below the poverty line. The program mainly targets pregnant women from underprivileged backgrounds in rural areas, most of whom have limited or no access to quality healthcare services. Women are selected through a tested poverty index that takes into account income thresholds and social indicators. Due to the private sector's higher accessibility and generally better quality care, private healthcare providers are given preference in voucher redemption under this program across both districts. The service package covers antenatal care, delivery and post-natal care, including up to four visits to a doctor before the delivery and baseline investigations such as complete blood count, blood grouping, urine examination, screening, and ultrasound. It also provides micronutrients and medicines benefiting expectant mothers. Similarly, the birth care package covers the entire delivery process (normal, episiotomy, or C-section), including medicines and equipment for relevant procedures, hospital stay, newborn care, and vaccinations. Lastly, the post-natal component provides clinical examination, micronutrients, and medicines (if required) followed by counseling on breast-feeding and family planning. Transportation is also provided to the beneficiaries during the entire process.</td></tr>
<tr><td colspan="3">Links:<br>66. http://healthmarketinnovations.org/program/sehat-sahulat-card-ssc<br>67. MOBILE-HEALTH-CLINIC-MODEL case study, Contech International Pakistan. 2011</td></tr>
<tr><td colspan="2">Education:</td><td>Managerial:<br>Service package, transportation system</td></tr>
<tr><td colspan="2">Economic:<br>Voucher</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>Contech International, Pakistan and union councils</td></tr>
<tr><td colspan="3">Stakeholders:<br>Union councils, district governments</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>Subsidizing ACTs in retail shops</td><td>Source:<br>ICIUM 2011</td></tr>
<tr><td colspan="3">Description:<br>An intervention in the retail sector that includes subsidies for ACTs can lead to a substantial increase in coverage in prompt and effective treatment for malaria.</td></tr>
<tr><td>Year:<br>5/2009-12/2009</td><td>Country:<br>Western Kenya (Busia, Mumias, and Samia districts)</td><td>Target:<br>Malaria</td></tr>
<tr><td colspan="3">Components:<br>The intervention had several main components:<br>(1) Shopkeepers had one-day group training on malaria, including clinical diagnosis, treatment, adverse drug reactions, and patient referral.<br>(2) ACTs were subsidized to crowd out antimalarial monotherapies and increase access to artemether-lumafantrine (AL); AL was sold to shops by PSI at 11 US cents (8 ksh) and to consumers at 27 US cents (20 ksh), far below the normal retail price of 5 US dollars.<br>(3) Additional consumer friendly instructions were added to AL for children under 5, which was sold under the name Tibamal Drug and delivered directly to selected retail outlets.<br>(4) Promotional activities (Tibamal Days) targeted consumers (through teaching, games, role plays, T-shirts, scarves, etc)<br>(5) Retailers were also provided with supportive materials including job aids, referral forms, posters, pens, and caps, etc.<br>(6) Supportive supervision was provided by PSI and DOMC staff.</td></tr>
<tr><td colspan="3">Links:<br>68. http://www.inrud.org/ICIUM/ConferenceMaterials/712-pamba_kangwana-_c.pdf</td></tr>
<tr><td colspan="2">Education:<br>Training of shopkeepers, Consumer education</td><td>Managerial:<br>Pre-packaged of AL, supportive supervision</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:<br>Price subsidy, pricing policy</td></tr>
<tr><td colspan="3">Implementers:<br>PSI, Kenya Medical Research Institute, Wellcome Trust</td></tr>
<tr><td colspan="3">Stakeholders:<br>Shopkeepers, caregivers, retail shops</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>Supply Chains for Community Case Management (SC4CCM)</td><td>Source:<br>JSI, SC4CCM</td></tr>
<tr><td colspan="3">Description:<br>The main objective of SC4CCM is to identify, demonstrate, and institutionalize supply chain management practices that improve availability and use of essential health products in community-based programs. The project will be implemented in two phases:<br>(1) To test, learn about, and identify supply chain solutions that will improve product availability at the community level<br>(2) To work closely with the Ministry of Health and supply chain and CCM implementing partners to catalyze the scaling up of successful supply chain solutions throughout the system</td></tr>
<tr><td>Year:<br>2010</td><td>Country:<br>Ethiopia</td><td>Target:<br>pneumonia, common diseases of childhood</td></tr>
<tr><td colspan="3">Components:<br>Some areas of emphasis in the Ethiopia SC4CCM include:<br>• PHASE 1 (10/2011-8/2012): lay the foundation for the “basics” in supply chain management for HEWs through finding a scalable, affordable, and effective strategy for reaching all HEWs<br>▪ Annual CCM quantification support<br>▪ Building the skills of HEWs (92 woredas)<br>▪ Train pharmacy managers and PHCU directors in “ready lessons” and SC problem solving during PHCU monthly meetings<br>• PHASE 2 (2/2013-1/2014): test more complex supply chain interventions once the foundation is strong, while scaling up the basics<br>▪ Quality improvement to enhance overall SC performance (9 woredas)</td></tr>
<tr><td colspan="3">Links:<br>69. http://sc4ccm.jsi.com/countries/ethiopia/</td></tr>
<tr><td colspan="2">Education:<br>Training of HEWs</td><td>Managerial:<br>Supply chain management, mHealth</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>JSI, Bill & Melinda Gates Foundation,WHO, health extension workers (HEWs)</td></tr>
<tr><td colspan="3">Stakeholders:<br>HEWs, MoH</td></tr>
</table>

<table>
<tr><td colspan="3">Name:<br>Supply Chains for Community Case Management (SC4CCM)-Malawi</td><td>Source:<br>JSI, SC4CCM</td></tr>
<tr><td colspan="4">Description:<br>The main objective of SC4CCM is to identify, demonstrate, and institutionalize supply chain management practices that improve availability and use of essential health products in community-based programs. The project will be implemented in two phases:<br>(1) To test, learn about, and identify supply chain solutions that will improve product availability at the community level<br>(2) To work closely with the Ministry of Health and supply chain and CCM implementing partners to catalyze the scaling up of successful supply chain solutions throughout the system</td></tr>
<tr><td>Year:<br>2010</td><td colspan="2">Country:<br>Malawi</td><td>Target:<br>pneumonia, common diseases of childhood</td></tr>
<tr><td colspan="4">Components:<br>Some areas of emphasis in the Malawi SC4CCM include product availability at resupply points; commitment to full supply of CCM products among partners (MOH and partners); decentralized quantification and funds; improved transport; vouchers for bike maintenance; motorbikes for delivery; visibility of data and data quality; use of SMS (cStock) and internet interfaces to have data visible throughout the supply chain; public recognition of good performance; performance based financing (P4P).</td></tr>
<tr><td colspan="4">Links:<br>70. http://sc4ccm.jsi.com/countries/malawi/<br>71. http://sc4ccm.jsi.com/files/2012/12/Using-data-from-cStock-to-Improve-Performance-of-the-CCM-Supply-Chain-in-Malawi1.pdf</td></tr>
<tr><td colspan="2">Education:<br>Training to HSAs, HC staff, and distric staff on using cStock</td><td colspan="2">Managerial:<br>Supply chain management, mHealth (mobile phones, EpiSurveyors, SMS), transport system</td></tr>
<tr><td colspan="2">Economic:<br>P4P, vouchers</td><td colspan="2">Regulatory:</td></tr>
<tr><td colspan="4">Implementers:<br>JSI, Bill & Melinda Gates Foundation, MoH, district level authorities</td></tr>
<tr><td colspan="4">Stakeholders:<br>HSAs (health surveillance assistants), telecommunications companies, MoH</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>Supply Chains for Community Case Management (SC4CCM)-Rwanda</td><td>Source:<br>JSI, SC4CCM</td></tr>
<tr><td colspan="3">Description:<br>The main objective of SC4CCM is to identify, demonstrate, and institutionalize supply chain management practices that improve availability and use of essential health products in community-based programs. The project will be implemented in two phases:<br>(1) To test, learn about, and identify supply chain solutions that will improve product availability at the community level<br>(2) To work closely with the Ministry of Health and with supply chain and CCM implementing partners to catalyze the scaling up of successful supply chain solutions throughout the system</td></tr>
<tr><td>Year:<br>2010</td><td>Country:<br>Rwanda</td><td>Target:<br>pneumonia, common diseases of childhood</td></tr>
<tr><td colspan="3">Components:<br>Some areas of emphasis in the Rwanda SC4CCM include:<br>• Addressing national product availability (national)<br>• Harmonizing CHW resupply procedures (national)<br>• Implementing incentives for supply chain improvement (Burera, Huye, Bugesera)<br>• Establishing quality collaborative for supply chain improvement (Ngoma, Nyabihu, Rutsiro)</td></tr>
<tr><td colspan="3">Links:<br>72. http://sc4ccm.jsi.com/countries/rwanda/<br>73. http://sc4ccm.jsi.com/files/2013/11/Rwanda-Baseline-Report_FINAL.pdf<br>74. http://sc4ccm.jsi.com/files/2014/11/Rwanda-Endline-Report.pdf</td></tr>
<tr><td colspan="2">Education:<br>Training CHWs, joint coaching of SC improvement</td><td>Managerial:<br>SC management, mHealth, transport, supervision</td></tr>
<tr><td colspan="2">Economic:<br>P4P: quarterly incentive based on supply chain tasks</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>JSI, Bill & Melinda Gates Foundation, CHWs, QI teams, community health desk (CHD), CCM logistics technical working group, MoH</td></tr>
<tr><td colspan="3">Stakeholders:<br>District, health center staff, cell coordinators, pharmacists, MoH</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>TEGEMEZA project</td><td>Source:<br>Health Market Innovations</td></tr>
<tr><td colspan="3">Description:<br>TEGEMEZA project will implement high-quality HIV care, prevention, and treatment activities in Central Kenya by local implementing partners and provide support for HIV-related services in over 200 health facilities in Central Kenya.</td></tr>
<tr><td>Year:<br>2010</td><td>Country:<br>Kenya</td><td>Target:<br>MCH, HIV and AIDS, TB</td></tr>
<tr><td colspan="3">Components:<br>TEGEMEZA project program, together with district and regional health facilities, will develop sustainable HIV and AIDS prevention, care, and treatment programs that focus on children and adults. Main strategies include:<br>• Provider-initiated testing and counseling<br>• Adult and pediatric HIV care, support, and treatment<br>• Adherence and psychosocial support and community outreach support<br>• Integrated TB/HIV activities<br>• Prevention of mother-to-child transmission of HIV<br>• Prevention with positives<br>• Health systems strengthening<br>• Laboratory and pharmacy support</td></tr>
<tr><td colspan="3">Links:<br>75. http://healthmarketinnovations.org/program/tegemeza-project</td></tr>
<tr><td colspan="2">Education:<br>Provider training</td><td>Managerial:<br>mHealth, service delivery network</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:<br>Policy/legislation</td></tr>
<tr><td colspan="3">Implementers:<br>CHS, Ministries of Medical Services and Public Health and Sanitation; Global Health Initiative; PEPFAR; Kenya National AIDS Strategic Plan III</td></tr>
<tr><td colspan="3">Stakeholders:<br>Health facilities</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>Uganda Health Information Network (UHIN)</td><td>Source:<br>FHI360</td></tr>
<tr><td colspan="3">Description:<br>Information and communications technologies (ICT) initiatives through the USA-based not-for-profit Academy for Educational Development providing support for HIV and AIDS, malaria, child and maternal health, and health systems management programs.</td></tr>
<tr><td>Year:<br>2003</td><td>Country:<br>Uganda</td><td>Target:<br>Child health</td></tr>
<tr><td colspan="3">Components:<br>Continuing medical education (CME) targeted to doctors, senior nurses, and senior clinical officers (tier 1) and community health workers (tier 2) is regularly broadcast though the UHIN. Health workers use PDAs to collect public health data at the community level. They then upload that data and send e-mails to AAP via infrared, Bluetooth, or wi-fi at a rural health facility. Data transfer from/to PDAs is facilitated using wireless access points (called African access points or AAP, developed by SATELLIFE) and a server located in Kampala. The AAP sends the data and messages over the cellular network to the server in the capital, which routes them to the correct recipients and sends back messages, data, and health information clinicians need.</td></tr>
<tr><td colspan="3">Links:<br>76. http://healthmarketinnovations.org/program/uganda-health-information-network-uhin</td></tr>
<tr><td colspan="2">Education:<br>Training of health personnel & CHWs</td><td>Managerial:<br>mHealth (PDAs)</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>CIDA, IDRC, district health offices</td></tr>
<tr><td colspan="3">Stakeholders:<br>Health centers, rural hospitals, health worders</td></tr>
</table>

<table>
<tr><td colspan="2">Name:<br>Uganda iCCM program</td><td>Source:<br>Malaria Journal</td></tr>
<tr><td colspan="3">Description:<br>The iCCM program aims to use diagnostic tests, including rapid diagnostic tests (RDTs) and respiratory rate timers (RRTs) in iCCM to improve rational use of drugs and quality of care for febrile under five children.</td></tr>
<tr><td>Year:<br>2010</td><td>Country:<br>Uganda</td><td>Target:<br>Malaria and pneumonia</td></tr>
<tr><td colspan="3">Components:<br>Trained community health workers (CHWs) are provided with malaria RDTs and RRTs to practice iCCM.</td></tr>
<tr><td colspan="3">Links:<br>77. Performance of community health workers under integrated community case management of childhood illnesses in eastern Uganda Kalyonga J et al Malaria Journal 2012, 11:282 http://www.malariajournal.com/content/11/1/282</td></tr>
<tr><td colspan="2">Education:<br>Training of CHWs</td><td>Managerial:<br>Diagnostic management</td></tr>
<tr><td colspan="2">Economic:</td><td>Regulatory:</td></tr>
<tr><td colspan="3">Implementers:<br>UNICEF, UNDP, WHO, World Bank</td></tr>
<tr><td colspan="3">Stakeholders:<br>CHWs, district local council officials</td></tr>
</table>