

Interventions to Improve the Role of Medicine Sellers in Malaria Case Management for Children in Africa

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Abstract: This document reviews 15 interventions to improve child health and malaria-related activities of Medicine Sellers or Patent Medicine Vendors (PMVs) in Africa. Medicine Sellers are a major source of health care for many communities in sub-Saharan Africa (SSA). Reports in the literature on the use of Medicine Sellers in Sub Saharan Africa during recent child illnesses range from 15–82% with a median around 50%. These statistics in themselves do not justify the use of Medicine Sellers, but indicate the importance of ensuring that Medicine Sellers have the capacity to provide safe and appropriate medicines in correct amounts in the communities they serve. This review addresses those capacity building questions. The review is part of the work of the Roll Back Malaria (RBM) Subgroup for Communication and Training within the Malaria Case Management Working Group (MCMWG). The Private Provider Task Force of this Subgroup was charged with the goal of providing guidance and recommendations to the RBM partners via the Working Group on promising and appropriate strategies for engaging the Medicine Sellers to improve management of malaria in children. An annotated bibliography with all project documents is included in the annexes.

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ACRONYMS

ACT	Artemisinin-based Combination Therapy
ADDO	Accredited Drug Dispensing Outlets
ARI	Acute Respiratory Infection
BCC	Behavior Change Communication (also known as IEC: Information-Education-Communication)
CBD	Community-Based Distributor/Distribution
CBO	Community-Based Organization
CDD	Control of Diarrheal Diseases
CQ	Chloroquine
CFW	Child and Family Wellness
CHW	Community Health Worker: volunteers including village health workers (VHWs) and village health motivators (VHMs)
DHMT	District Health Management Teams
EPI	Expanded Programme on Immunization
FGD	Focus Group Discussion
GMP	Good Manufacturing Practice
HBM	Home-Based Management: home-based management, diagnosis, and treatment occurring outside the clinical setting, in or near the home of malaria and/or fever
HCP	Health Communication Partnership (a USAID-funded project)
IPP	Informal Private Provider
ITM	Insecticide-Treated Material
ITN	Insecticide-Treated Net (mosquito net)
IMCI	Integrated Management of Childhood Illness
IPP	Informal Private Provider
KAP	Knowledge, Attitude, and Practice (referring to surveys)
KPC	Knowledge, Practices, and Coverage (referring to surveys)
MCMWG	Malaria Case Management Working Group (of RBM)
MCP	Malaria Control Programme
MDG	Millennium Development Goal
MOH	Ministry of Health
NGO	Non-Governmental Organization
NHIF	National Health Insurance Fund
NMTG	National Malaria Treatment Guidelines
ORT	Oral Rehydration Therapy (includes ORS – oral rehydration solution)
OTC	Over-the-Counter (usually drugs, licensed sale without a prescription)
PMV	Patent Medicine Vendor (also known as Patent Medicine Seller or Dealer)
PP	Private Provider
PPD	Pre-Packaged Drugs: tablets enclosed in sealed sachets or blister packs, not loose
PSI	Population Services International
RBM	Roll Back Malaria
SFH	Society for Family Health (Nigeria-based NGO)
SHEF	Sustainable Healthcare Enterprise Foundation
SMART	Specific, Measurable, Appropriate, Relevant, and Time-bound
SSA	Sub Saharan Africa
STI	Sexually Transmitted Infection
TDR	UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

This document reviews 15 interventions to improve child health and malaria-related activities of Medicine Sellers or Patent Medicine Vendors (PMVs) in Africa. Medicine Sellers are a major source of health care for many communities in sub-Saharan Africa (SSA). Reports in the literature on the use of Medicine Sellers in SSA during recent child illnesses range from 15–82% with a median around 50%. These statistics in themselves do not justify the use of Medicine Sellers, but indicate the importance of ensuring that Medicine Sellers have the capacity to provide safe and appropriate medicines in correct amounts in the communities they serve. This review addresses those capacity building questions.

The review is part of the work of the Roll Back Malaria (RBM) Subgroup for Communication and Training within the Malaria Case Management Working Group (MCMWG). The Private Provider Task Force of this Subgroup was charged with the goal of providing guidance and recommendations to the RBM partners via the Working Group on promising and appropriate strategies for engaging the informal private providers to improve management of malaria in children.

The review has the following objectives: 1) guiding a Consultative Meeting on the issue of how well interventions to improve the role of Medicine Sellers have worked, where and under what circumstances they worked and, of those interventions, which have potential for going to scale, and 2) identifying important gaps in the present knowledge and experience with Medicine Sellers and identifying research topics which have the potential to achieve the greatest impact.

The study of Medicine Sellers broadly included three elements: 1) the consumers' perspective, i.e. health-seeking behavior, 2) the providers' performance, and 3) intervention studies to enhance the quality of both. Numerous studies that have addressed health-seeking behavior from non-formal sources and a smaller number of studies that have documented the provider's performance are briefly summarized. What was missing was a systematic review of interventions that were undertaken to address the problems documented in the first two types of study. This review attempts to address this gap by focusing on documented interventions geared primarily for the Medicine Sellers themselves.

Since the review's objective is to provide lessons from existing interventions that can inform health and malaria program managers in Africa, it must address the following key questions about those interventions:

- What are the nature, scope and components of available interventions?
- What evidence is available from monitoring and evaluation to determine appropriateness and effectiveness of the interventions?
- What elements of the interventions are unique to the local cultural, political, and economic climate, and which can be generalized to other communities and countries?
- Is there evidence that the interventions have been sustained and how was this achieved?
- Are the interventions affordable as implemented and, therefore, can communities and countries afford to scale them up for wider implementation?

Three elements comprised the inclusion criteria for the interventions covered in the review. The first addressed the definition of the Medicine Sellers. The second concerned the geographical scope (Africa). The third was the health condition on which the intervention was focused (malaria), although other child health issues were considered.

The challenge was to find examples of studies and projects that actually intervened with Medicine Sellers to enhance or improve on their roles in community health care generally and in the control of malaria in African children specifically. Internet searches formed the first level of inquiry and PubMed/Medline was the first port of call. It soon became evident that most work was done very recently and had not yet been formally published. Thus, key terms were used in general search engines, and "grey" literature libraries were searched. In addition to extracting available information from these searches, the team obtained contact information about each project and made direct inquiries to fill in gaps in project descriptions and

information. Follow-up contact was made with colleagues in various health and development agencies that work in Africa. This search process spanned two months.

Fifteen projects met inclusion criteria for this review. They varied in scope and were based in Kenya, Nigeria, Uganda, Ghana, Tanzania, and Zambia. It is notable that none were found outside of Anglophone Africa. These projects ranged in size from involving less than ten Medicine Sellers to over 1,000. There were three broad types of projects; all projects had donor support, and all served as potential demonstration efforts. Five were research trials that tested training interventions to change Medicine Seller behavior. Three involved systematic activities to create a management support network through a franchising process. Seven were donor-sponsored community health program interventions either as short-term projects or as a foundation for scaling up into larger scale public health programs. An annotated bibliography with all project documents is found in Annex 1.

From this process, two major conceptual dimensions emerged as organizing principles. The first was the nature of intervention, and the second was the evaluation design. The former would have implications for which projects might be replicable and expandable in scale. The second would enable judgments about what worked under what circumstances. The key variable concerning the nature of the intervention was the centrality of Medicine Sellers to the process. Medicine Sellers could be the central or only focus of the project, they could be one of the major components of a broader community health intervention, or they could be an adjunct to the main intervention.

A second variable of the nature of the intervention was the range of components, with four major components emerging from our review: 1) Training/Capacity Building, 2) Creating an Enabling Environment, 3) Demand Generation, and 4) Quality Assurance. All projects had an element of training and capacity building, 11 included some aspect of quality assurance, ten addressed demand generation, and six addressed the enabling environment.

All interventions had the purpose of improving home-based care in order to reduce the subsequent morbidity and mortality associated with poorly managed illness episodes. The monitoring and evaluation procedures reflected varying objectives of the different interventions. Research trial interventions had the most rigorous standards of reporting and evaluation. These few scientific or quasi-scientific interventions provided the best evidence base for effectiveness and cost effectiveness. Those concerned primarily with program service delivery tended to concentrate on monitoring the process and outputs in order to develop the intervention, but some attempted to evaluate impact at the level of changes in shopkeeper behavior.

All interventions were preceded by a thorough situation analysis and collection of baseline data using methods such as key informant interviews, community or household surveys, focus group discussions, shop surveys, and mystery shopper or simulated visit questionnaires. The level of reporting from the interventions in general and the baseline data collection activities in particular varied considerably. Thus, direct comparison of specific indicators and interventions is not possible. Evaluations have been completed in 11 of the interventions and are planned for the remaining four. All of the interventions have used both quantitative and qualitative methods for evaluation. Intervention trials have sought to define outcome indicators more clearly and have developed tools such as shop survey checklists, pre- and post-training knowledge tests, simulated visit questionnaires, shopper role plays, and community survey questionnaires.

Interventions to change Medicine Sellers appear to focus at two levels: behavior change and role change. Behavior change interventions focus on improved sales practices such as selling an effective antimalarial drug or not selling antibiotics. These interventions can provide short-term and relatively rapid responses to a focused problem—such as ensuring that children get the correct antimalarial drug promptly—and may be most helpful in achieving the Abuja goals in the short term. Role change interventions train Medicine Sellers to be active health care providers, as evidenced in the various franchising studies. The choice of level depends on public policy needs. If the policy goal is to ensure that Medicine Sellers complement the formal health sector, behavior change interventions may be most appropriate. On the other hand, if there is desire to increase access to quality health care to under-served populations, role change interventions may be more appropriate. In the latter case, enabling legislation may be needed in order to legitimize an expanded role for the Medicine Seller.

There is insufficient evidence to conclude that any one approach to working with drug retailers is superior to any other. Similarly, it is not possible to quantify any additional benefits of adding community-

based activities such as demand creation or the distribution of behavior change communication (BCC) materials to an intervention to train shopkeepers.

It is clear, however, that training alone can improve drug retailer knowledge about malaria, but the impact that this knowledge has on practice is uncertain. Where training, monitoring, supervision, and refresher training are provided, changes in practice can be observed and even maintained: the proportion of retailers who stock approved drugs, ask about the age and condition of the child, dispense age appropriate dosages, and advise caregivers about referral can be increased. Yet, despite the impressive changes possible, there are limits to what can be achieved with seller and community education alone. After these interventions, large numbers of children with fever still will not get adequate early treatment because, even in areas where Medicine Sellers are numerous, 40–50% of fever cases do not seek treatment from Medicine Sellers, and, of those that do, a large percentage do not receive appropriate care. Part of the reason for this persistence of inadequate treatment is that drugs are often of poor quality. So, we should not undervalue those interventions that have sought to increase the availability of Good Manufacturing Practice (GMP) drugs through managed supply chains.

For Medicine Seller interventions to be taken to regional, provincial, or national scale, financial costs will need to be minimized. In the reported interventions, cost reduction has generally been achieved by minimizing the expectations for *per diems* and remuneration and by using existing local government health officials as facilitators and supervisors. The real opportunity costs are thus offset for the government by potential reductions in treatment costs at health facilities and for the Medicine Sellers by anticipated increases in profits. The involvement of local government health management teams is also crucial if large-scale funding is to be obtained.

The review has shown that engaging with Medicine Sellers, providing training, and generating demand for recommended antimalarial drugs offers both short- and long-term opportunities to improve child survival. The evidence to support best practices is incomplete, but there are lessons that policy makers must be made aware of, if progress towards Millennium Development Goal (MDG) and the Abuja targets is to be made. The lessons should also be taken into account when planning the best way to introduce artemisinin-based combination therapies (ACT) into national formularies, given the significant role of Medicine Sellers in access to current antimalarials.

Medicine Sellers offer a service to patients that is widely used but generally of poor quality. Well-planned and targeted interventions to train Medicine Sellers can increase the chances that, when drugs are bought from a shop, a patient will receive the correct dose of a recommended antimalarial drug. Therefore, when considering national plans to improve the home management of malaria, it would be imprudent to ignore any commonly used cadre of drug retailers.

Client knowledge is a strong determinant of the outcome when drugs are bought from a retailer, so concurrent community information and education programs should increase the chances of children receiving appropriate treatment for malaria after Medicine Seller interventions. The role of Medicine Sellers in community education must not be overlooked, as they have been found to be a major source of information.

Three key partners need to be involved in these interventions: the consumer/community, the Medicine Sellers, and the government planning and regulatory agencies. These key partners can be supported by donor agencies and non-governmental organizations (NGOs). Specific lessons for these partners are outlined in the report. What is most important to realize is that the different projects reviewed herein represent different levels of commitment and resources in both the short and long term, and range from short behavior change courses on malaria case management to long-term role and system changes in the form of developing a franchise movement. Obviously, lessons from these 15 studies need to be adapted to the resources and policy goals in the countries and communities concerned.

1. INTRODUCTION

A common link among the different types of informal private providers (IPPs) is the fact that they are “unqualified” to provide health care. In a technical sense the official nature of their work classifies them as commercial business people, not health care providers. In this context, they are commonly known as Patent Medicine Sellers, Vendors (PMVs), or Dealers since their business should legally be confined to selling proprietary drugs in their original packages. In practice, Medicine Sellers sell other commodities at the same time as medicines in at least one-third of customer encounters. If it were only a matter of selling approved medicines, direct interventions by the public sector in the work of Medicine Sellers would probably be unnecessary except for elements of enforcement. The fact that Medicine Sellers fill an important health care niche means that more formal interventions would benefit the health of communities.

This document reviews interventions to improve child health and malaria related activities of Medicine Sellers in Africa. Fifteen studies and projects were identified for detailed review. Five were research studies that tested training interventions to change Medicine Seller behavior.^{1,2,3,4,5} Three described efforts to improve overall Medicine Seller functioning through organized franchising.^{6,7,8} Seven were organized through donor support either as short-term projects or as a foundation for scaling up into larger scale public health programs.^{9,10,11,12,13,14,15} An annotated bibliography with all project documents is found in Annex 1.

The review begins with background information including definitions of IPPs, the scope of this work, the objectives, and the key questions under review.

1.1 The Importance of Medicine Sellers

Informal Private Providers or Medicine Sellers are a major source of health care for communities. Reports in the literature on the use of Medicine Sellers during recent child illnesses range from 15–82% with a median around 50%.^{16,17,18,19,20,21,22,23,24,25} Medicine Sellers are used even when supposedly more convenient and cheaper alternatives exist such as village health workers.^{4,25,26} A high proportion of children who are eventually brought to a clinic usually have been given some biomedical drugs prior to arrival, ranging from 50–80%.^{17,23,27,28,29} These statistics in themselves do not justify the use of Medicine Sellers, but indicate the importance of ensuring that Medicine Sellers have the capacity to provide safe and appropriate medicines in correct amounts in the communities they serve. This review pulls together reports of intervention studies and projects that have attempted to improve the capacity of Medicine Sellers to serve their communities’ needs.

1.2 Objectives of the Review

The review has been developed as a key background document for a Consultative Meeting on Interventions to Improve the Role of Medicine Sellers in Case Management of Malaria (Fever) in Children Under 5:

- To provide guidance to the Consultative Meeting on how well interventions to improve the role of Medicine Sellers have worked, where and under what circumstances they worked, and of those interventions, which have potential for going to scale.
- To provide guidance to the Consultative Meeting on the important gaps in the present knowledge and experience with Medicine Sellers and to identify research topics, which have the potential to achieve the greatest impact.

The findings of the review were used to develop the content of the Consultative Meeting with the following objectives:

- Using the review and proposed recommendations as a guide, the Consultative Meeting will develop a menu that can be used at the national and sub-national level to identify situation-appropriate interventions to improve Medicine Seller practices for case management of malaria in children under 5 years of age.

- Using the review as a guide, prioritize a list of research topics that will guide Roll Back Malaria (RBM) Partners' investments in operations research to improve Medicine Seller services.
- Identify the essential components of a situational analysis for Medicine Seller interventions, which will be developed as a companion piece to this activity.

1.3 Context of Work

The RBM Sub-group for Communication and Training within the Malaria Case Management Working Group (MCMWG) designated a Private Provider Task Force with the goal of providing guidance and recommendations to the Roll Back Malaria partners, via the Working Group, on promising and appropriate strategies for engaging Medicine Sellers to improve management of malaria in children.

The Task Force has identified four specific areas of work:

1. Developing advocacy strategies for promoting engagement of Private Providers (PPs) among decision makers at national and sub-national level.
2. Developing tools for rapid situation analysis at national/sub-national levels to inform decision makers on involvement of PPs in case management of malaria.
3. Review and provide guidance on appropriate interventions to improve management of malaria in children under 5 by Informal Private Providers (IPPs) and identifying gaps in current knowledge.
4. Develop a framework for linking efforts to improve PP practices with efforts to improve community and home practices related to case management.

The focus of this review is topic 3.

1.4 Definitions

The study of Medicine Sellers broadly includes three elements: 1) the consumers' perspective, i.e. health seeking behavior, 2) the providers' performance, and 3) intervention studies to enhance the quality of both. Numerous studies of behavior of health seeking from non-formal sources and a smaller number of studies documenting the performance of non-formal medicine sellers are briefly summarized here. What was missing was a systematic review of interventions that were undertaken to address the problems documented in the first two types of study. This review attempts to address this gap by focusing on documented interventions geared primarily for the Medicine Sellers themselves..

Commercial sale of pharmaceutical products outside the formal health system is a common practice throughout the world. Over-the-counter (OTC), non-prescription medicines form the basis of much self-care for both illness and prevention. Supermarkets and drug stores in industrialized countries have long aisles full of these patent or proprietary products ranging from analgesics to zinc supplements. Even before they reach the store, consumers are bombarded with advertising and news articles about these drugs. Consumers in these settings for the most part are literate, can read the printed instructions, and usually can easily obtain advice from a trained pharmacist.

Consumers in African settings also buy OTC drugs to meet their health needs, and such drugs are often abundantly available in markets and large shops, but here the similarity ends. Many of the consumers have no or low literacy skills. Due to educational gender biases, this is especially true in the case of mothers who typically deal with illness in their young children. Even pictorial packet inserts have their limitations among consumers who have never been to school and learned how to interpret a picture. The shopkeeper may have only primary school education. Even if the mother of the sick child goes to a private pharmacy, she is often unlikely to meet the pharmacist; instead she is usually attended to by a clerk, who in education and training is not much different from a drug seller.³

The primary work of the Medicine Seller is a business. Medicine Sellers sell drugs along with other commercial items such as soap powder, cereal, tinned milk, and light bulbs. The bulk of customer-Medicine Seller interactions involve selling medications that the customer has requested.^{2,30} Medicine Sellers have both functional and legal dimensions to their work. The functional part involves the process of selling a product,

while the legal component designates which products the Medicine Seller can and should sell. “Patent medicine” refers to proprietary drugs that are considered safe to sell to the general public in pre-packaged form and include common drugs like pain relieving tablets and cough syrups. Drugs should not be extracted from the package and sold in lesser or greater number, as this constitutes “dispensing.”³¹

Medicine Sellers almost universally keep “under the counter” stocks of prescription drugs like antibiotics and tranquilizers, which are outside the scope of the Medicine Seller’s licence.^{30,32,33,34,35,36,37} This is where the legal component of Medicine Seller practice becomes salient. The potentially helpful and questionable practices of Medicine Sellers are accepted as part of the normal health landscape in some countries, but in others authorities crack down on illegal sales.^{38,39}

1.5 Key Questions

Since this review is attempting to provide lessons from existing interventions that can inform health and malaria program managers in Africa, it must address the following key questions about those interventions:

- What are the nature, scope and components of available interventions?
- What evidence is available from monitoring and evaluation to determine appropriateness and effectiveness of the interventions?
- What elements of the interventions are unique to the local cultural, political, and economic climate, and which can be generalized to other communities and countries?
- Is there evidence that the interventions have been sustained, and how was this achieved?
- Are the interventions affordable as implemented and, therefore, can communities and countries afford to scale them up for wider implementation?

2. OVERVIEW OF PATENT MEDICINE SELLING

2.1 Environmental Context

The practice of selling medicines outside the formal health sector varies widely across Africa. Countries such as Nigeria, Ghana, and Tanzania have formal licensing procedures for persons who want to sell OTC drugs. In Kenya, municipal licenses are required for the sale of products on the general sales list, which includes some OTCs, and the District Medical Officer may approve other generally accepted OTC drugs. In countries such as Senegal and the Gambia, the notion of obtaining medicines outside the public health services is rare, although some OTC drug packets may be found in shops in the markets.

Even in cases where Medicine Sellers are licensed, they are often ignored or harassed. Indifference and neglect by the formal health services has hindered development of interventions that recognize the resource Medicine Sellers represent in many areas of Sub-Saharan Africa (SSA), particularly in the fight against childhood illnesses.

2.2 Consumer Perspectives

Medicine Sellers maintain their existence like any business in response to consumer demands. The fact that community members find their services convenient and affordable often gives Medicine Sellers a competitive advantage over formal public and private health services. This section briefly looks at consumer utilization of those who run medicine shops.

Child illness management often begins at home,⁴⁰ with the medicine shop being the second source of care.^{41,42} Most cases of illness begin and end with self-treatment,^{24,43,43a} and, in an example from Nigeria, most people are satisfied with their first choice of care.²⁴ Preferences for government clinics over other sources have been recorded in some studies,^{22,44} but just as often, researchers have reported that community members have lost confidence in government facilities.¹⁶ In fact, parents report that the more personable social interaction, ease of seeking advice, and flexible pricing policies at medicine shops as reasons for seeking care from Medicine Sellers.⁴⁵

Home care often starts with medicines already at home that were left over from previous purchases from Medicine Sellers,^{21,28,46} home remedies, including local herbs,⁴¹ or combinations of OTC drugs and herbs.⁴⁰ Prompt first-line treatment is facilitated by purchase of OTC drugs from retail outlets.^{47,48} Home care for perceived malaria using chloroquine ranged from 18% to 83% in studies from Guinea and Togo, respectively.^{17,49}

The pathway of care for sick children was traced in a recent study of febrile illness in three rural Nigerian communities.²⁴ Medicine Sellers were the most popular first choice of care (46%) for 3,006 families who sought treatment for their sick child. Of the 675 who sought a second form of treatment, Medicine Sellers still held a majority at 30%. Even among the 51 who sought a third form of care for a recent illness, 18% used a Medicine Seller. Among those using another form of care first, Medicine Sellers were sought as a second choice by 58% who used herbs first, 62% who first went to a government clinic, and 31% who used a private clinic first.

Economic, social, and geographical factors influence care seeking. Access to cash at the time of illness and the opinions of those from whom cash is sought influence choice of care.¹⁶ People construct their ideas about their illness and the medications needed in the context of the economic situations in which they find themselves.⁵⁰ In Ghana, people in poorer communities were more likely to obtain medicines from retail outlets, while those in wealthier areas attended government or private clinics.^{18,43} This is not surprising, as research in Lagos, Nigeria documented that prices paid for medicine increased from Medicine Sellers to government clinics up to private facilities.⁵¹ Similarly, patients with less formal education were more likely to utilize Medicine Sellers than those with more education.^{43,52} Studies have shown that rural patients may choose Medicine Sellers as their first line of care more often than urban ones in a ratio as high as 3 to 1.^{24,43,51} Often people make an economic trade-off between either saving money on transport and buying sometimes

more expensive drugs from nearby shops or spending time and money to go to a government clinic where inexpensive or free drugs might be available.^{43,53,54}

Use of medicine shops for self-care varies between rural and urban communities with rural residents being more likely to continue using Medicine Sellers even as their illnesses became more serious. This contrasts with urban dwellers who were more likely to switch over to formal health sector care, including hospitals.^{43,54,55} OTC drugs are more often used for illness perceived as less serious, such as malaria,²¹ while more serious conditions such as convulsions may be taken to an indigenous healer or hospital.^{43,56} In rural areas, seeking orthodox care is often an expensive undertaking requiring not only money for medications but also for transport, leading people into debt or to less expensive forms of care such as indigenous medicine and Medicine Sellers.²⁶

Some customers also believe that Medicine Sellers are knowledgeable in their field, and if asked about health information, are ready to give answers and suggestions.⁵⁷ In Kenya it was reported that shopkeepers frequently give advice on which drugs to take and the dosage.⁵⁸ Customers equally recognize that Medicine Sellers are less knowledgeable than health workers, but the latter are not always easily accessible.^{59,60}

2.3 Medicine Seller Performance

Medicine Sellers stock and display their wares for common problems such as malaria, cough, and pains in a highly visible way.^{25,34,61,62,63} Less visible are the drugs that are outside the scope of their licenses such as antibiotics.^{32-35,37} Drug supplies are obtained through both formal and informal channels, including large retail and wholesale pharmacies in major cities and pharmaceutical companies or their representatives.^{34,37,48,64,65} Studies report that some of these drugs may be ineffective, counterfeit, or expired,^{48,59,66} and once obtained the supplies may be stored and handled in inappropriate ways that endanger their potency.^{59,66,67} Other evidence indicates that retailers generally do stock in-date drugs due to their high turn over.¹ While Medicine Sellers have been found to keep records of their stock purchases, they usually do not keep records of sales to customers.^{30,34}

The persons actually found managing the shops at the times of researchers' visits are often clerks and apprentices, not the owners or licensees.^{2,30,37,68,69} The owners themselves may peddle their drugs outside,^{2,33,65} as some do itinerant vending as a business itself.⁷⁰ One of the most commonly observed inappropriate selling behavior of the Medicine Sellers is the dispensing of antibiotics and other medicines that are outside the competence of the individual clerk or the license of the establishment.^{32-34,37,59,71} In a case of selling medicine to treat sexually transmitted infections (STIs), the medicine sellers at first denied dispensing medicines.⁷²

A key aspect of Medicine Seller behavior is that in most encounters with their customers, Medicine Sellers simply sell what the customer requests.^{2,30,69,73} This makes the Medicine Seller business much like any other retail shop. In fact, it was observed in Nigeria that nearly half of visits to Medicine Seller shops are to buy non-health related products or to socialize with the attendants.⁷³ Medicine Sellers have also been accused of polypharmacy, the selling of many drugs when one would address the problem,^{59,74} but it should be noted that this is often a common practice among many professional health staff as well.⁷⁴ Some Medicine Sellers will sell directly to small children.^{30,69,75} Often the type or dose of medicine is inappropriate for the presenting complaint.^{32,33,76,77}

The selling of inappropriate amounts may relate to some customers' inability to afford the whole course of medication at the time of purchase.^{57,78} Medicine Sellers address economic realities of the community,⁴⁵ and either sell on credit^{57,59} or adjust the brand of drug and price to the buyer's ability to pay.⁴⁸

Few Medicine Sellers are presented with a prescription from a trained health professional, nor do they request one prior to making a sale.^{30,60,69} In fact, when presented with a prescription sheet, some sales people cannot interpret it.^{2,61} When they can read, it has been found that Medicine Sellers learn much about dispensing and prescribing from observing the health professionals' prescriptions.^{60,66} It is not surprising therefore, that the drugs they recommend on their own reflect the preferences seen in the wider health system.

Medicine Sellers rarely ask questions about the illness^{30,69} and vary widely in the amount, accuracy, and quality of information given on how to take the medicines.^{27,30,32,33,59,60} Instructions are often unclear,⁵⁹ and

misinformation is often provided.⁶⁰ Preventive information is rarely shared with the customer.^{32,59} Medicine Sellers may even “inflate” information about the efficacy and purposes of the drugs they sell in order to impress the customer.⁵⁰ Actual license holders/shop owners have been found to be better at communicating information and advice to customers than clerks or apprentices.^{30,69}

2.4 Place of Medicine Sellers in RBM Situation Analysis and Interventions

The RBM movement was organized in 1998 with an aim of revitalizing international, national, and community interest and action on controlling and preventing malaria morbidity and mortality. RBM was based on three major technical interventions: 1) improved case management, especially for children under five years of age, 2) promotion of insecticide-treated netting materials for prevention of malaria, and 3) control and prevention of malaria in pregnancy. A first step in the RBM planning process was to conduct country situation analyses and needs assessments to determine the status of malaria, the extent of implementation of the aforementioned interventions, and the factors that enhanced or inhibited these interventions.

This review focuses on the technical area of improved case management for children. RBM has recognized that much of malaria treatment is based in the home with medicines acquired from Medicine Sellers. While such care is usually affordable, accessible and potentially beneficial,⁷⁹ it may not involve the most appropriate drug or may not be sold in the correct dose.^{17,19,43,80} Specifically the RBM assessment instruments guide malaria program planners to inquire into community care seeking habits, including the use of Medicine Sellers, the existence of Medicine Sellers at the community level, and the nature of antimalarial drugs they keep in stock. It is intended that this review can help malaria program planners use their findings on health seeking and Medicine Seller behaviors and develop locally appropriate interventions based on lessons learned from the studies and projects herein assembled.

3. METHODS

3.1 Organization of Work

The work of this review was guided by the RBM Malaria Case Management Working Group, as described in section 1.3. The review was conducted by two consultants familiar with Africa private provider interventions with support from a BASICS and a Malaria Consortium technical officer. This four-person team was responsible for the review.

3.2 Inclusion Criteria

Three elements comprised the inclusion criteria for the interventions covered in this review. The first addressed the definition of the IPPs. The second concerned the geographical scope (Africa). The third was the health condition on which the intervention was focused (malaria), although other child health issues were considered.

First and foremost, the focus of the intervention was on IPPs. In some countries unlicensed and unregistered drug shops, along with market stalls and itinerant drug hawkers, are not uncommon. Ubiquitous small kiosks along the street often sell analgesics along with sweets, cigarettes, and kola nuts. Market women who sell house wares, detergent, or beauty products have been observed with bowls of exposed tablets and capsules among which customers pick and choose. Hawkers with boxes or sacks of indigenous herbal preparations frequent small villages and open-air markets or simply walk along the street singing out for customers to buy their potions. These have not been shown to be an appreciable source of medicines for children, and our review found no interventions targeting this group.

Trained pharmacists are licensed to operate private pharmacies with legal access to all varieties of medicine. However, the pharmacists are often not the actual sales people (pharmacy shop attendants or clerks) who interact with customers and respond to their health needs. These pharmacy shop attendants or clerks often have educational background and training not much different from those working in kiosks or drug shops.^{3,59} The untrained attendants in any private drug selling establishment are also of concern here, but our review found no interventions targeting attendants in pharmacies or clinics.

The target group of all the IPP interventions covered in this review was what has been commonly referred to as drug sellers, Patent Medicine Vendors, and chemical sellers. Herein the preferred term is Medicine Seller. Medicine Seller shops are small commercial enterprises staffed by “unqualified” people who have little or no formal training in health care or pharmacy, and in fact may have only primary or secondary education. In legal terms, Patent Medicine Vendors (Medicine Sellers) are typically licensed to sell over the counter, proprietary medicines in their original packages, including cough syrups, analgesics, antimalarials, vitamins, and hematinics. It has been well documented that Medicine Sellers also sell drugs outside their legal scope, including antibiotics and tranquilizers.

Medicine Sellers are often licensed by an arm of the government at national, provincial, or state level. Pharmacy law in Nigeria, for example, distinguishes different types of licenses ranging from License A for trained pharmacists to License C for the sellers of patent medicines. An application form accompanied by character references from prominent community members is all that is required. Minimal education at the primary level is a convention for Medicine Sellers, not a law. Each country has its own procedures and categories of licenses, but it is the type of provider who would hold a License C on whom this review focuses. In addition to licensure, Medicine Sellers are often registered as members of ward, district, state, and/or national trade associations. While such registration has no legal status, it does provide an avenue for social control as well as joint bargaining when it comes to dealings with legal authorities.

The geographic and health focus of this review are interrelated. This review was commissioned by the Roll Back Malaria (RBM) partnership, which is giving special attention to Africa, the area with the greatest burden of malaria. The health issue focus of the review is malaria, with *Falciparum* malaria being the most deadly type of malaria and the major form of malaria found in Africa. Timely and appropriate intervention in

or close to the home is essential for preventing mortality and curtailing morbidity in the most vulnerable ages, children less than five years old.

After having limited the main focus of the review on interventions with African Medicine Sellers to improve their ability to curb the threat of malaria, the authors identified only 15 studies that met the inclusion criteria. Only six of these appeared in full or in part in the formal published literature.^{1-5,14} Nine were located through Web searches and personal contact with the agencies involved.^{6-13, 15} All but two took place in the past five years, as the process of involving Medicine Sellers in health care on a systematic basis is a relatively recent phenomenon.

Due to the dearth of accessible intervention studies meeting the desired criteria, the authors did recognize that there might be other studies that could add value to the review of more focused interventions. Studies exist that involve Medicine Sellers in promoting other health technologies such as contraceptives and STI treatment.^{81,82,83,84,85,86,87,88,89,90} There are a few examples of interventions with volunteer village health workers (VHWs) with revolving drug funds that took place outside of public sector health services, either as research or service projects.^{58,91,92,93} Finally, there are interventions related to malaria and the other above mentioned health commodities that took place outside Africa.^{94,95,96,97,98,99,100,101,102} While these additional studies are not reviewed in detail, they are included in the annotated bibliography in Annex 1 and mentioned in the document where they offer unique lessons that could lead to better designed interventions for African Medicine Sellers in malaria control.

3.3 The Search Process

Section 2 of this report demonstrates the extensive literature available documenting utilization of Medicine Sellers and to some extent their performance. Their existing role, strengths, and shortcomings in providing for the pharmaceutical needs of the community have been well documented. Unfortunately, most of such studies simply recommend legal or educational solutions. The challenge of the current undertaking was to find examples of studies and projects that actually intervened with Medicine Sellers to enhance or improve their roles in community health care generally and in the control of malaria in African children specifically.

Internet searches formed the first level of inquiry. The inclusion criteria described above provided a guide for key search terms. PubMed/Medline was reference source; it soon became evident that most work was done very recently and had not yet been formally published. Thus, key terms were used in general search engines, and “grey” literature libraries were searched. In addition to extracting available information from these searches, the team obtained contact information about each project and made direct inquiries to fill in gaps in project descriptions and information.

Finally, contact was made with colleagues in various health and development agencies that work in Africa, and various leads were then followed and verified. This search process spanned approximately two months.

3.4 Conceptual and Analytical Framework

The team conferred throughout the process, and both the inclusion criteria and conceptual framework evolved as the search continued. The team decided to let the available data inform the analysis instead of predetermining the framework in which the data would fit.

Two major conceptual dimensions emerged from this process as organizing principles. The first was the nature of intervention, and the second was the evaluation design as seen in the sample below (Table 1). The former would have implications for which projects might be replicable and expandable in scale. The second would enable judgments about what worked under what circumstances. The key variable concerning nature of the intervention was the centrality of Medicine Sellers to the process. Medicine Sellers could be the central or the only focus of the project. Medicine Sellers could be one of the major components of a broader community health intervention, or Medicine Sellers could be an adjunct to the main intervention. Each intervention was characterized by the range of intervention components it addressed; the four major components being training/capacity building, enabling environment, demand generation, and quality

assurance. Some interventions were narrowly focused, while others, in particular franchising interventions, addressed most components.

Table 1. Analytical Framework

Project Name:	
Country:	
Medicine Seller Numbers	Large/Small
Type of Evaluation	Process/Output/Outcome
Nature of Intervention	
1. Focus on Medicine Sellers	Central/Major/Adjunct
2. Capacity Interventions	Y/N
Workshops, Courses	Y/N
Peer Education	Y/N
In-Shop Education	Y/N
BCC Materials	Y/N
3. Enabling Environment	Y/N
Quality Packaging	Y/N
Legislation, Policy	Y/N
Credit Facility	Y/N
Bulk Purchasing	Y/N
Subsidy for Drugs	Y/N
Subsidy for Distribution	Y/N
4. Demand Generation	Y/N
Communication Media	Y/N
Community Promoters	Y/N
5. Quality Assurance	Y/N
Local Accountability	Y/N
Medicine Seller Association	Y/N
Monitoring, Supervision	Y/N

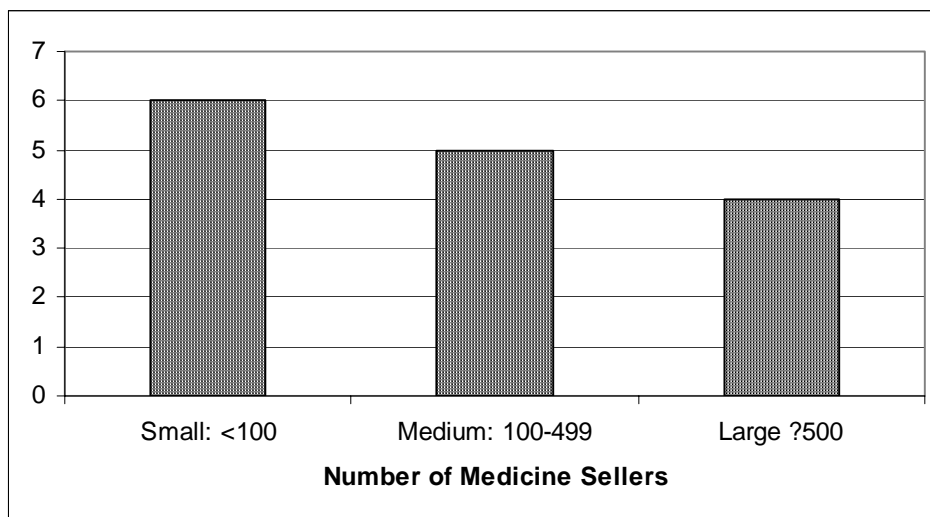
The evaluation dimension looked at three levels of assessment: 1) monitoring of process, 2) monitoring output, and 3) evaluating outcomes. Most interventions were not designed for and did not include a rigorous evaluation, so outcome indicators were generally not reported, leaving many questions about the effectiveness of these interventions unanswered.

4. INTERVENTION CHARACTERISTICS

4.1 The Projects

Fifteen projects met inclusion criteria for this review. They varied in location and scope. Five were based in Kenya and four in Nigeria, two each in Uganda and Ghana, and one each in Tanzania and Zambia. It is notable that none were found outside Anglophone Africa. Thirteen took place within the past five years. The earliest was published in 1992. These projects ranged in size from involving less than 10 Medicine Sellers to over 1,000. The scale of intervention could be grouped into three levels: seven small with less than 100 Medicine Sellers, four medium with between 100-499 Medicine Sellers, and four large with 500 or more Medicine Sellers.

Figure 1. Size of Intervention



There were three broad types of projects, as described in the Introduction. Five could be described as research trials that tested the effect of intervention on Medicine Seller knowledge and practice and in some cases, on changes in consumer behavior. Three involved systematic activities to create a management support network through a franchising process. The remaining seven were donor-sponsored community health program interventions that involved Medicine Sellers on some level. The size of the research trials ranged from 10–500 Medicine Sellers with a median of 50, while the franchise and program interventions ranged from 50–1,000 Medicine Sellers with a median of 250. All intervention research trials provided some form of outcome evaluation. Among the program interventions, one conducted an outcome evaluation, three provided monitoring information, and five reported only process information.

The projects' focus on Medicine Sellers could be categorized at three levels as seen in the Intervention Matrix in Annex 2. In six projects, the Medicine Seller was the central or main focus of intervention.^{1,2,6-8,13} In five more projects, Medicine Sellers were a major intervention component, which was complemented with other strategies to improve appropriate use of medicines in the community.^{3,4,11,14,15} Finally, in four projects the Medicine Seller component was an adjunct to the main community health intervention.^{5,9,10,12} Those where the Medicine Seller was not the central focus involved a variety of other providers including village health workers, indigenous providers, and pharmacists. Medicine Sellers were supportive to the main intervention of mass media in one program,¹⁰ and to community based organizations in another.⁹

4.2 Key Intervention Components

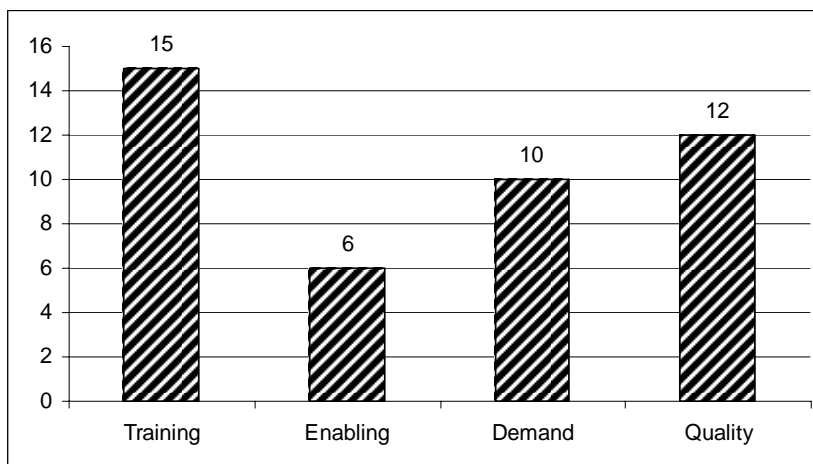
Four major intervention components were identified (Table 2). These included: 1) Training/Capacity Building, 2) Creating an Enabling Environment, 3) Demand Generation, and 4) Quality Assurance. All projects had an element of training and capacity building, 12 included some aspect of quality assurance, ten addressed demand generation and six addressed the enabling environment (Figure 2). More detailed information on the intervention components is outlined in Annex 2.

Table 2. Intervention Components

Training and Capacity Building	Creating an Enabling Environment	Demand Generation	Quality Assurance
Workshops, Courses, and Orientations	Prepackaging and Drug Formulation	Mass Media and Information	Franchising and Accrediting
Peer and In-Shop Education	Policy and Regulation	Community Promoters and Mobilization	Community Accountability
Supportive Instructional Materials, Job Aids	Credit Facilities Subsidies		Medicine Seller Association Oversight
	Bulk Purchasing		Monitoring and Supervision

Training/capacity building was achieved through three main activities: 1) workshops, courses and orientations, 2) peer or in-shop education, and 3) supportive instructional materials and job aids. All projects conducted a training workshop. Topics focused on a variety of issues including common health problems, use of specific drugs (as in the case of pre-packaged antimalarials), safety, dosages and contra-indications of permitted drugs, referral procedures, pharmacy law, communication skills, management skills, and procedures unique to the intervention (e.g., franchising procedures). Management skills could include finances, record keeping, business ethics, and stock maintenance. Four projects backed up the formal training sessions with in-shop or peer education visits.^{3,5,10,14} Eight reports specifically mentioned developing take-home materials and job aids for the trainees.^{2,3,5,10-12,14,15}

Figure 2. Types of Interventions



The three most common elements of training content of the various interventions were drug use, communication, and referral. All projects reported that Medicine Sellers were trained on correct drug choices, use, and dosages. Thirteen projects clearly stated that Medicine Sellers were taught communication and health education skills to use with their customers to ensure that the drugs were taken correctly and that supportive therapy, such as diet, was applied. The third most common aspect of training content was the need for referral, reported in nine studies. Management skills such as record keeping and stock maintenance were included in six projects. Four reports indicated that they covered the role of adequate nutrition and use of insecticide-treated bed nets in disease prevention. Another four projects (those using some element of franchising) taught Medicine Sellers procedures and rules for their special systems. Finally, two project reports specifically mentioned addressing some aspect of pharmacy law directly related to Medicine Seller operations.

Three aspects of creating an enabling environment for improved Medicine Seller practice were identified: 1) the quality and packaging of drugs, 2) drug policies and regulations, and 3) credit facilities for shopkeepers. Three projects addressed drug quality and packaging: two specifically focused on promoting pre-packaged antimalarial drugs, and the third used the franchising process to stock quality pharmaceutical products.^{4,6,11} Four projects included some aspect of regulation of policy.^{6,8,11,13} One linked franchising with enabling Medicine Sellers to sell both OTC and limited prescription drugs. Another required the national food and drug agency to approve new pre-packaged drugs. The projects associated with franchising reported that credit facilities were available to help Medicine Sellers improve their business.

Demand generation was addressed with two approaches. Eight projects included mass media or public information components. Six projects trained community volunteers to promote patronage of trained Medicine Sellers and appropriate medicines, as seen in Annex 2.

Quality Assurance was addressed in five main ways: 1) franchising or accrediting, 2) consumer accountability, 3) engaging a Medicine Seller association, 4) monitoring and supervision, and 5) pre-packaged drugs. The process of franchising or accrediting shops was evident in four projects. In addition to project-specific training, those who received accreditation or specific recognition received signs, posters, or stickers that identified them as an accredited outlet. In some cases, the accredited shop was eligible to purchase drugs from specified warehouses or wholesalers at reduced cost. Three projects reported that some form of consumer accountability was built into the design. Consumer accountability included the use of community-based organizations to identify, recruit, and monitor Medicine Sellers. Four projects mentioned the use of existing or forming new Medicine Seller associations to assist in establishing norms and supporting and/or expanding training. Monitoring and supervision post-training was built into ten projects. Monitoring was linked with record keeping in at least two projects.

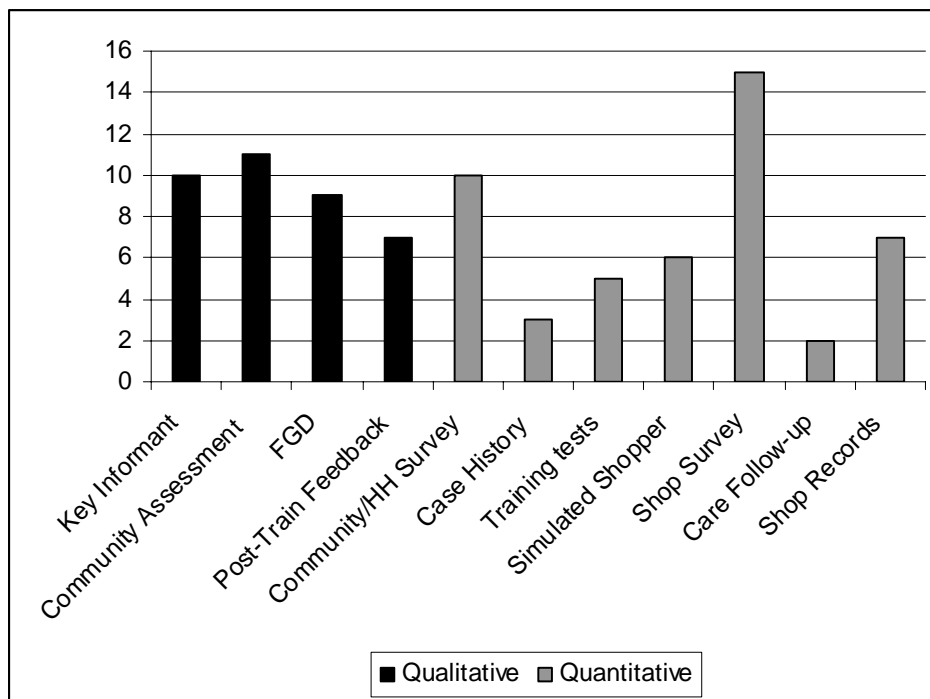
Franchising itself consisted of several components. The Accredited Drug Dispensing Outlets (ADDO) project in Tanzania combined training, marketing, commercial incentives, inspection, drug quality, and support strategies to address Medicine Seller problems and transform their shops into a regulated system of profitable enterprises. A set of operating standards was developed that addressed shop size, design and sanitation, stock control, and handling. The monitoring system also included the potential for sanctions and for recertification through continuing education. Franchising often created identifiable names, brands, and logos, as was the case with the CFWshopsTM (Child and Family Wellness Shops) in Kenya. Franchisees are eligible for special benefits such as microfinancing and purchase of lower cost drugs from central stores. An element of franchising was found in the project promoting pre-packaged antimalarial drugs (PPDs) in Aba, Nigeria in that Medicine Sellers were provided with shop stickers, posters, and danglers that designated them as trained providers of the RBM logo PPD. In Ghana, CAREshop members can benefit from group purchasing and a marketing/image creation effort.

5. REPORTING AND EVALUATION ISSUES

5.1 Process

The interventions all have the purpose of improving home-based care in order to reduce the subsequent morbidity and mortality associated with poorly managed illness episodes. The design and reporting of the monitoring and evaluation reflects the varying objectives of the different interventions. The interventions with the primary focus of testing methods of improving Medicine Seller performance had the most rigorous standards of reporting and evaluation. These few scientific or quasi-scientific interventions provide the best evidence base for effectiveness and cost effectiveness. Those concerned primarily with program service delivery have tended to concentrate on monitoring the process and outputs in order to develop the intervention, but some have attempted to evaluate impact at the level of changes in shopkeeper behavior.

Figure 3. Methods for Situation Analysis and Baseline Measurement



All interventions were preceded by a thorough situation analysis and collection of baseline data using a variety of methods to describe pre-existing Medicine Seller and caregiver practices. The methods included key informant interviews (10), community or household surveys (11), focus group discussions (7), shop surveys (15), and mystery shopper or simulated visit questionnaires (6). (See Annex 2 for a summary of the intervention processes.) Those interventions that appear to have been most successful in changing practices sought also to describe: the legal framework in which untrained Medicine Sellers operate; the channels through which drugs reach the Medicine Sellers; and the geographic circumstances which dictate consumer choice when caregivers are faced with a sick child.

The planners in most cases then sought to ensure that as many stakeholders as possible agreed that action was necessary. Interventions that included the widest “buy-in” were generally more successful. The interventions involving Medicine Sellers, public health officials, and community representatives in curriculum development, training, and supervision appear to have faced the fewest problems and arguably

will be the most sustainable ones in the long term. The two interventions that appeared to have worked most closely with national drug regulatory authorities and other Ministry of Health partners achieved the most significant policy changes. In one intervention, a national strategy for involving private health practitioners in child survival was developed;¹³ in the second, following agreement with the national drug regulatory authorities and the School of Pharmacy, new legislation was drafted in order to create a separate class of accredited Medicine Seller.⁶

The level of reporting from the interventions in general, and the baseline data collection activities in particular, varied considerably. For example, in all interventions shop surveys were conducted in the target area, but the surveys differed in extent from simply listing the number of Medicine Sellers to detailed observations recording selling and prescribing practices, types of medicine stocked and sold, instructions given to clients, and educational level of the Medicine Seller. So, while direct comparison of specific indicators is not possible, this review presents what data are available on the impact and effectiveness of the different interventions.

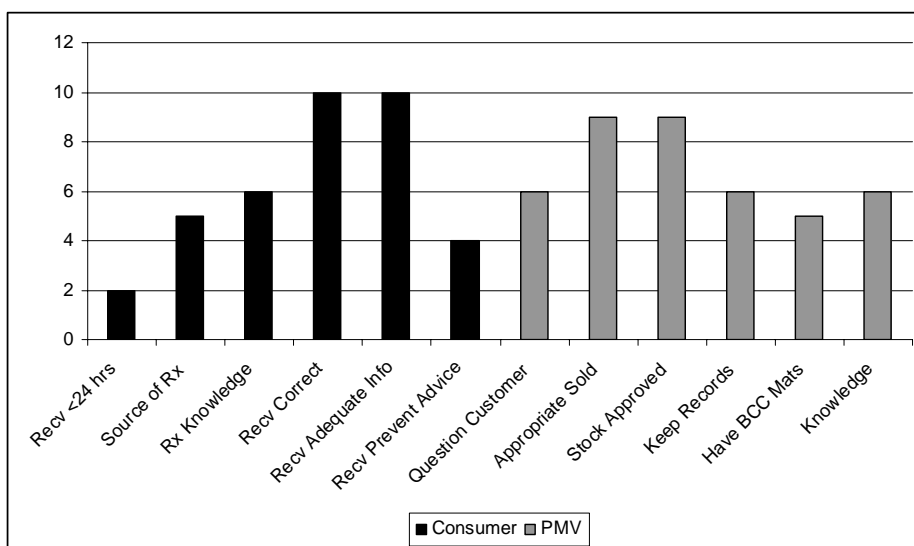
5.2 Monitoring and Evaluation

The principal outputs in all of the interventions were related to the numbers of candidates trained during the intervention, the number of new shops operating, and the production of BCC materials to be used by Medicine Sellers and CHWs and available to the public. In contrast to the descriptions of process, there is little information available on the monitoring of the outputs for the interventions.

Evaluations have been completed in 11 of the interventions and are planned for the remaining four. All of the interventions have used both quantitative and qualitative methods for evaluation. Intervention trials have sought to define outcome indicators more clearly (Figure 4) and have developed tools such as shop survey checklists, pre- and post-training knowledge tests, simulated patient questionnaires, shopper role-plays, and community survey questionnaires.

Most projects have assessed the impact on Medicine Sellers' behavior through combinations of surveys, tests, interviews, exit surveys, focus-group discussions, and mystery shopper or simulated client studies. None of the intervention models, however, have attempted to assess the impact on malaria morbidity or mortality, accepting instead that improved access to knowledge about sale and use of antimalarial drugs will improve child survival. Four interventions discuss the use of referral data for severe cases as a proxy for impact on disease patterns, but no results are available.^{3,7,12,15}

Figure 4. Outcome Indicators Measured for Customers and Medicine Sellers



Pre- and post-training assessment of Medicine Seller knowledge was conducted through testing in six interventions^{2,3,5,7,11,15} and through feedback in seven.^{1,2,4,5,9,12,15} In one intervention, the results were then used to modify training so that it was more relevant and effective.¹⁰ In another, it was explicitly stated that the involvement of the trainees in the curriculum development process increased their commitment to the process and encouraged them to believe that the project took their role seriously.² In six interventions, the trainees expressed a desire for further training as they felt that the process either increased their turnover or gave them increased credibility within the community.^{1,2,7,9,11,12}

Six of the interventions assessed actual Medicine Seller performance, as well as knowledge, by using mystery shoppers or simulated patient visits.^{1,3,11,13,14,15} In three models, cases, identified either from patient records held by Medicine Sellers or through household surveys, were followed up in detail to assess community practice.^{1,4,11} One study used case histories from household surveys to assess behavior.⁵ Bearing in mind that proxy measurements have their limitations and that much of the economic analysis, reported later, is based on estimates, these interventions combining data on knowledge and practice provide the most reliable and robust evidence for the potential benefits to be gained from Medicine Seller training.

The three franchising models used supervision and monitoring of sales and stock records to provide assessment of the impact of training and the effectiveness of the franchise shops.⁶⁻⁸ The numbers of Medicine Sellers still selling drugs and their reported drug sales were used as primary indicators to assess the impact of a social marketing model to promote PPDs.⁴ It would also be important to know if the medicine received by the child is the recommended drug.

Only one study has attempted to verify the impact of Medicine Seller training on the numbers of children with fever who actually received an adequate dose of antimalarial (4% before training increased to 65% afterwards).¹ Two studies attempted to determine if the intervention had any impact on the time taken for caregivers of children with fever to seek treatment.^{1,4} The promptness of care and use of drugs appeared to be dependent on the source from which these were sought rather than being determined by the drug preparation.⁴

5.3 Nature of Results Reported

The overriding impression from the interventions is that the proportion of clients that receive the correct dose of an effective drug can be increased. Where Medicine Sellers are taught about approved drugs, have the opportunity to stock such drugs, and can see the benefits of providing guidance on age appropriate dosing, the proportion of Medicine Seller-client interactions that have a satisfactory outcome can be increased from as low as 1 or 2% to as many as 40 or 50%. However, where the impact has been assessed as the proportion of fever cases treated in shops that have actually received the right dose of the right drug within 24 hours of onset of the illness, the proportions are more modest, at best 30%.¹ In this situation, where 60% of the fever cases identified were treated through shops, 30% receiving adequate treatment still leaves significant numbers of cases incorrectly treated. Two interventions showed little or no improvement in the proportion of Medicine Sellers advising caregivers about preventive practices,^{1,11} however, a persuasion/negotiation approach showed promise in changing this Medicine Seller behavior.¹³

All interventions have reported improvements in either Medicine Seller performance or the likelihood of caregivers receiving an age appropriate dose of a recommended drug from a drug retailer as a result of training. Interventions that included community education also demonstrated an increase in the number of caregivers likely to identify malaria and seek appropriate care.^{1,4,5,11,14,15} Medicine Sellers who had received training were also more likely to stock approved antimalarial drugs either through access to pre-packed antimalarials, through the existing commercial chain for branded products or through access to quality assured drugs from a pooled procurement system operated by a franchise. The evidence for sustained improvement in Medicine Seller performance and lasting impact on caregiver behavior is, however, limited.

Two studies that included Medicine Sellers, VHWs and clinic staff as the target groups for training recorded a decrease in the numbers of caregivers seeking advice and treatment from Medicine Sellers.^{4,12} After the intervention, the caregivers preferred to go to the trained village health workers. In the very rural and underserved Ssembabule community in Uganda, the program resulted in a dramatic decline in care

seeking from Medicine Sellers from 47% to 7%.¹² In the promotion of PPDs in urban and rural settings in Nigeria, a small decline overall in care seeking from Medicine Sellers was noted. In this case, formal health staff and Medicine Sellers sold more PPDs in towns while VHWs sold more in small hamlets.⁴ On average, Medicine Sellers sold the most PPDs per person. The Kilifi study also demonstrated a small but not significant reduction over time in the proportion of fever cases being treated through shops.¹

5.4 Cost Issues

Cost data were available from six interventions.^{1,7,11,13,14,15} All calculated an incremental cost, but only the Kilifi and Bungoma groups attempted to estimate the cost effectiveness of the interventions.^{1,14}

The cost of setting up a CFW franchise network in two districts in Kenya was calculated at between US\$800,000 and US\$1 million with a cost per capita served of between US\$0.60 and US\$1.00.⁷ For each shop opened, US\$5,000 to US\$8,000 more is required over the first three years to cover training and shop start-up costs. In Ghana, expected start-up costs of around US\$255 per shop have been set, but details of the setup and running costs of the franchise require further elaboration.⁸

Training of Medicine Sellers in Kilifi provides the most robust data for training interventions.¹ The cost for each additional effective treatment achieved decreased from US\$4.00 to US\$0.43 as the intervention was expanded. Setting up the training program in a new area would have cost US\$15,200, while the cost per appropriate effective treatment would be likely to vary between US\$0.37 and US\$1.36, excluding drugs, if similar impact were to be maintained in the new area. The economic cost per year for each trained shop was extrapolated to be US\$18.41.

At the program level, the cost of implementation for working with wholesalers and distributors in the Bungoma vendor-to-vendor intervention was US\$8,300.¹⁴ Since the beneficiaries from the intervention were not confined to the program area, a detailed retrospective analysis of the probable impact was required, which gave a cost effectiveness estimate of US\$0.10 per beneficiary. The cost for each retail outlet reached was US\$17.00. When the community education, neighbor-to-neighbor component was added, the cost was US\$0.83 per household reached.

In Nigeria, where training on the use of new pre-packaged antimalarial drugs was offered to Medicine Sellers as part of a social marketing campaign, US\$10.00 was spent directly on training and US\$7.00 on BCC materials for each Medicine Seller recruited.¹¹ This compares with about US\$58.00 per trainee that were required in Uganda to train a group of private health care practitioners to deliver improvements in malaria, diarrhea, and ARI case management.¹³

6. CASE STUDIES

Five of the 15 studies identified were selected to be highlighted as case studies to illustrate different types of approach to Medicine Seller interventions.

6.1 Medicine Seller Training in Rural Kenya¹

District health officials working with researchers in Kilifi, Kenya have convincingly demonstrated that training Medicine Sellers can substantially increase the number of children who receive appropriate treatment for fever within 24 hours of becoming ill. The recurrent costs of such an intervention are within the reach of most district health budgets, and set up costs are small enough to be attractive to potential institutional donors.

Kilifi is a coastal district of Kenya where malaria is endemic and, for up to 60% of childhood fever cases, initial care is sought from general shops. A detailed community assessment of usual fever-related practices was combined with data from informal interviews with popular Medicine Sellers to inform the development of the intervention. Training workshops for Medicine Sellers, who were already selling antimalarial treatments, were run for four days by district public health technicians, reaching 285 shops. Community meetings, certification ceremonies, posters, and leaflets were used concurrently to improve community knowledge and malaria awareness. Detailed cost data collected during phased implementation in two geographic areas permitted estimates of the incremental and recurrent costs as well as cost effectiveness.

Workshops covered the cause and symptoms of malaria, appropriate drug treatment, indications for referral, and basic communication skills. Treatment charts were supplied as job aids for shopkeepers to use in their shops. Continuing support and encouragement for the shopkeepers was provided by trainer visits to trainees' shops and refresher courses for Medicine Sellers and trainers. The incentives reported for the Medicine Sellers were increased knowledge, increased ability to help their own families, social status, and profits. No payment was made to or required from the trainees.

The effectiveness of the intervention was determined from large-scale household surveys and the estimated number of febrile episodes first treated in shops in the area. Over the years following the training and advocacy program, the percentage of fever cases first treated in shops that received an adequate dose of antimalarial within 24 hours increased from 1% in 1999 to 28% in 2001. The trained Medicine Sellers also sold drugs in a different way after their training: they gave advice on the type and quantity of drugs being sold and explained to caregivers how to use the drugs at home. A further hidden benefit of the program was a reduction in the use of aspirin-based drugs and an increase in the use of paracetamol, the antipyretic recommended by the MOH for use alongside SP in the treatment of malaria.

The intervention was popular among Medicine Sellers, but 30% stopped selling drugs within the first year, and there were concerns about the amount of time required for training. Also, Medicine Sellers were concerned about the time it would take to advise caregivers. Attrition rates in subsequent years ran at less than 5% per year.

Despite the wastage in the early implementation phase of the program, the economic cost of each additional appropriately treated case was US\$4.00 (2000 US\$). Researchers estimated that an expanded district implementation with similar impact would cost around US\$0.84 per additional appropriately treated case (variation US\$0.37–US\$1.36 in the sensitivity analysis).^{103,104} If district planners were to develop and adopt a similar intervention, an initially high cost for the development phase and setup year of US\$0.20 and US\$0.17 per capita, respectively, could be expected. The annual implementation cost thereafter would be about US\$0.04 per capita.

In the pilot study, researchers validated the dose of chloroquine that caregivers reported giving to their children at home through comparison with blood levels from children who had taken a known dose of chloroquine.

6.2 Combining Interventions to Improve Home-Based Management of Fever¹¹

In Abia State, Nigeria, a consortium of partners has shown that it is possible, using peer-educators, to train a large number of Medicine Sellers quickly and cheaply. After training, Medicine Sellers promoted the correct use of pre-packaged antimalarial drugs (PPDs) for preschool aged children.

The BASICS II project established 15 Catchment Area Planning and Action (CAPA) Committees, comprising local community-based organizations (CBOs) anchored around 15 local government primary health care facilities. The CAPA Committees selected volunteer community health promoters (CHPs) who were trained to provide home-based counseling on the need for prompt treatment of childhood malaria with appropriate antimalarial drugs. In addition, CAPA members conducted an inventory of Patent Medicine Dealers/Sellers in each area where appropriate antimalarial drugs could be obtained. Educational and training materials for the CHPs and Medicine Sellers were developed with the Health Communication Partnership (HCP). Concurrently, the Society for Family Health (SFH/PSI) worked with Nigerian pharmaceutical manufacturers to develop strategies for marketing recently approved PPDs in age-specific, color-coded blister packs. SFH provided supplies of PPDs for the trained Medicine Sellers through their national wholesale distribution network developed previously for the social marketing of contraceptives. They also hired a product detailer to support the PPDs and the Medicine Sellers. A social marketing component was launched for the blister packs using RBM logos, radio spots, and a billboard campaign.

Over a three-month period, 82% of 1,031 Medicine Sellers identified completed one day of training at a cost of approximately US\$10.00 per participant. Twenty-one of the Medicine Sellers acted as master trainers. Job aids and customer handbills for the Medicine Sellers cost an additional US\$7.00 per Medicine Seller. Community baseline and follow-up surveys, pre- and post-training knowledge and practices (simulated visits), and a consumer response/satisfaction survey among product users were undertaken to evaluate the impact of this combined intervention.

The user survey showed that the most common place where people heard about the PPDs was from Medicine Sellers (33%) but that other sources of information were important, including health workers (24%), electronic mass media (18%), and friends or relatives (14%). Consumers were generally satisfied with the pre-packaged product and for the most part ensured that their children took the full dose.

The mystery client assessment showed that Medicine Sellers readily adopted the new PPD, with 60% assessed recommending PPDs after its introduction. Correct dosing increased from 11% in simple malaria cases before the use of color-coded packs to 57% after the interventions. Interestingly, in spite of a significant increase in knowledge after training, there was a decrease in the percentage of Medicine Sellers who explained to caregivers of children with simple malaria the signs that would require that a child be taken to a health facility (15% down to 10%) and of those who referred a case of fever with convulsions (26% down to 14%).

The results show that Medicine Sellers, CHPs, and health staff all had a role to play in the introduction of the PPDs. It should be noted that caregivers glean information from different sources, and that a more comprehensive coverage will be achieved by including a combination of provider types when planning interventions to change consumer and provider behavior.

6.3 CFWshopsTM – Franchised Drug Outlets⁷

In two districts in Kenya, the Sustainable Healthcare Enterprise Foundation (SHEF) has established a retail micro-franchise distribution network to provide essential drugs and basic health services at affordable prices to poor communities. More than 553,000 patients have so far been treated at the 37 CFWshopsTM, of whom 25% were suffering from malaria.

The model combines micro-enterprise and franchise principles to enable CHWs and nurses to own and operate drug shops and medical clinics in underserved areas. Qualified CHWs establish franchise drug shops using the franchise operating system that SHEF has developed. Nurses establish medical clinics using a similar system. The franchise operating system includes rules that CHWs and nurses must follow (diagnostic, treatment, drug handling, etc.) as a condition of maintaining their business opportunity. SHEF requires detailed patient, sales, and stock returns from the franchisees and conducts field inspections to ensure

compliance. The system is simple enough for CHWs and nurses to operate, yet imposes disciplined practices to ensure that the expected high quality drugs and appropriate services are available to the community at affordable prices.

When CHWs or nurses buy into the franchise, their skills and knowledge are assessed, and they are given training in the expectations and requirements of the scheme. Once approved, they gain the right to use the CFWshops™ brand; ready access to high quality, affordable drugs; operations support; access to network resources; continuing education; membership in the organization; and other resources and services. With these benefits, franchisees usually garner a profitable business, leadership in their communities, and income to sustain their families. But, while SHEF offers a CHW or a nurse a valuable opportunity, it also conditions enjoyment of the opportunity on compliance with strict clinical and business practice rules. If the franchisee breaks them, the franchise is revoked. So long as the value of the opportunity is greater than the value of breaking the rules, franchisees follow the rules and self regulate.

The SHEF philosophy is to establish a sustainable primary health care network capable of managing easily treatable conditions so that scarce government health resources can be released and concentrated on secondary care. To this end, four CFWshops™ medical clinics have been established to date as referral clinics to support the drug shops. Patients that cannot be managed in the drug shops can be treated in the clinics because they are owned and operated by qualified nurses who may legitimately supply a wider range of drugs and health services, including injections, than may be provided in the CHW-operated drug shops. The clinics act as the hub to the network and, as patient records are held in the shops and clinics, there is significant future potential for more integrated care.

Evaluation of this type of operation is difficult. Success has been measured in terms of the number of shops that have been established and remain in business; their adherence to the standards set by SHEF central office; the number of patients treated; the number of outlets reaching financial sustainability; and other outcome indicators including the number of ITNs sold and the percentage of diagnosed malaria cases requiring referral. More subjective assessments include observations of low mortality rates in the two districts where CFWshops™ operate during recent malaria epidemics, and possible improvements in other Medicine Sellers' practices and prices in response to the competition provided by the CFWshops™.

Cost effectiveness assessment has not been possible, but the economic cost of this business model is being tracked. The average start-up cost of each outlet, until it reaches self-sustainability after about three years, is around US\$5,000. CHWs who buy into the scheme contribute US\$200 and require a micro-loan, repayable over two years, of US\$800 to cover four weeks franchise training, initial drug stocks, shop signage and branding, shop furniture, and equipment. The remaining US\$4,000 per shop is provided by SHEF to cover the costs of three years of supervision, logistic support, continuing education, and central office administration. SHEF expects to recover its investment within five years through franchise royalty fees and mark up on drugs delivered to the shop. In time, revenue earned from franchise outlets is expected to cover all the operating costs incurred by SHEF to support the network.

6.4 Vendor-to-Vendor Education in Private Drug Outlets in Kenya¹⁴

In 1998, Bungoma district, Kenya had a population of about 900,000 people and about 1,500 private drug outlets run by mostly untrained Medicine Sellers who knew little about malaria treatments. About 50% of children with fever were managed at home with drugs bought mostly from pharmacies, small shops, or kiosks where the chances of being sold a recommended antimalarial at the correct dose were small.

By 1999, researchers working with the District Health Management Team recognized that improving the ways in which Medicine Sellers responded to requests for malaria medicines might improve child survival. But a training program for 1,500 Medicine Sellers disbursed across the district would take a long time and cost more than the DHMT could afford. So a scheme to equip drug wholesalers in the district to act as trainers for the Medicine Sellers was launched. The wholesalers were either counter attendants at major pharmacy wholesale outlets or mobile Medicine Sellers who supplied drugs to small peripheral drug shops. They were given one day of training and supplied with stocks of counter-top job aids for Medicine Sellers and posters promoting recommended brands of antimalarials to be hung near the door of the shops. Training,

including role-play, was aimed at providing the wholesalers with the skills needed, during a normal business interaction, to persuade Medicine Sellers to hang up the posters and use the job aids.

In the first six months after training the wholesalers an estimated 500 Medicine Seller outlets in Bungoma and surrounding districts had received posters and job aids. A second phase reached a further 300–400 outlets. The economic cost of the program was calculated at about US\$17.00 per outlet reached or US\$0.10 per beneficiary (defined as a person with malaria who was properly treated due to the intervention).

Evaluation of the impact using mystery shoppers showed that overall the intervention had significantly changed the stocking patterns, malaria knowledge, and prescribing practices at shops and kiosks but not at pharmacies or clinics. Of outlets reached with project BCC materials, 62% stocked recommended antimalarials compared with 23% of control outlets, and 32% of mystery shoppers who went to a shop or kiosk that had a poster or job aid were sold a recommended first line antimalarial compared to 5% at control outlets.

6.5 Negotiated Contracts with Medicine Sellers in Uganda¹³

In Uganda, the IMCI Unit and the National Malaria Program recognized the potential benefits of working with Medicine Sellers to improve child survival. The MOH developed a national strategy and, with partners, tested an adapted form of the Information; Feedback; Contract; Ongoing Monitoring (INFECTION) intervention to improve private providers' practices. The INFECTION model, developed in Bihar, India, combines the collection of information on case management practices; feedback to the providers on current practices; negotiation of a contract with the provider to modify remediable practices; and ongoing monitoring of the providers adherence to the contract.¹⁰⁵

Following a detailed national situation analysis and an inventory of all private providers in three districts, drug shops and ordinary shops in four sub-counties were identified as the most suitable target group for the intervention. The usual ways in which shop staff respond to sick clients were assessed by district health staff who were trained to act out simulated patient visits covering simple and severe cases of malaria, ARI, and diarrhea. Results from the simulated visits were then fed back to the 104 Medicine Sellers who accepted a personal invitation, extended to all the Medicine Sellers in the four subcounties, to attend a three-day workshop.

District health staff moderated the feedback workshops during which issues surrounding usual and desired practices were discussed and possible changes negotiated. At the end of the training, all the Medicine Sellers agreed to sign contracts that described specific actions they would take to improve their practices when dealing with malaria, ARI, and diarrhea in children. The Medicine Sellers were provided BCC materials to use in their shops. Project supervisors or moderators followed up with the Medicine Sellers by providing monitoring and support to identify problems and to encourage the Medicine Sellers at their shops.

The impact, assessed by follow up simulated client visits, was significant. For simple malaria, before the negotiated contracts, 2% of the Medicine Sellers gave the correct medicine, none gave the correct dose, and 8% explained how to give the medicine. After the intervention, 73% gave the correct medicine, 50% gave the correct dose, and 49% explained to the client how to give the medicine. The proportion of Medicine Sellers who offered advice to caregivers on danger signs that would require immediate care also increased from none at baseline to 22% after the intervention. Referrals were also up for those Medicine Sellers presented with a simulated case of severe malaria (a 2-year-old child with fever and convulsions the previous night). ITNs were recommended by 24% of Medicine Sellers faced with a case of severe malaria, but only 5% for simple malaria.

Not all the changes noted were positive, and long-term changes in practice have yet to be measured but this model appears feasible and, with the district health staff taking on training responsibilities, sustainable. The cost at about US\$58.00 per Medicine Seller trained is higher than other models, but economies of scale could be gained if the undertaking were to be expanded.

7. POINTS OF INTEREST FROM RELATED INTERVENTIONS

7.1 Pre-Packaged Drugs (PPDs)

The use of chloroquine-based PPDs has been tested in several sites, including Nigeria, Burkina Faso, Ghana, and Uganda.^{106,107} It is only in Nigeria that Medicine Sellers were directly involved in the pilot process and subsequent scaled-up intervention.^{4,11} The key lesson was that child caregivers were more likely to obtain and use correct dosages and that progression to severe malaria was thereby reduced. With the advent of combination therapies, the PPD format may become even more important since few such combinations are also co-formulated. A study in Rwanda found that blister packs of SP and amodiaquine led to significantly better compliance (73%) than the same drugs sold in loose form (51%).¹⁰⁸

7.2 Role of Village Health Workers

Some of the reviewed interventions included some form of community volunteers,^{4,5,11} variably called village health workers, community health workers, or village motivators who are often linked with public sector primary health care programs. There are other examples where VHWs were trained as part of research or NGO activities and are not controlled by the formal health sector. Two examples offer lessons that have an impact on Medicine Seller interventions. In one case, VHWs were shown to be capable of setting up and managing their own revolving drug supply.¹⁰⁹ Current franchising interventions do not appear to offer Medicine Sellers a major self-management role, and this VHW study has promising lessons for franchise managers on involving Medicine Sellers in managing their own drug supplies at the community level. The second VHW study bears some similarities with the Zambia study reported herein,⁵ in that VHWs are given a primary role in promoting appropriate malaria treatment, while training of Medicine Sellers appears to be a secondary activity. In the case of Saradidi, Kenya, Medicine Sellers were not directly involved, and after VHWs were trained, patronage of Medicine Sellers for malaria treatment declined dramatically.¹¹⁰ This has clear public policy implications in that one approach to the Medicine Seller issue is to train alternative providers. Unfortunately, public sector VHW interventions are difficult to maintain.^{108,111}

7.3 Lessons from Reproductive Health Interventions

Several studies that report reproductive health (RH) and STI interventions with private and non-formal providers are of interest and explore the sale of commodities such as urethral discharge kits and simple contraceptives such as condoms and foaming tablets.^{112,113,114,115,116} Promotion of these commodities aimed to improve accuracy and adequacy of “treatment” as was done for the promotion of PPDs through Medicine Sellers. The RH interventions also show that informal providers such as market women are capable of being trained to provide such commodities.^{111,112} Finally, RH/STI interventions have shown that it is possible to change the knowledge and sales behavior of IPPs and Medicine Sellers to reduce inappropriate use of drugs like antibiotics and to follow treatment guidelines for the syndromic management of STIs.^{117,118,119,120,121,122,123}

7.4 Integration with CDD and ARI Interventions

Finally, there are interventions that are aimed at the role of IPPs and Medicine Sellers in handling two other child health care concerns: control of diarrheal diseases (CDD) and ARI. Interventions in Thailand and Brazil succeeded in increasing promotion of oral rehydration therapy (ORT), but had negligible or mixed effects on reducing inappropriate sales of antibiotics and antidiarrheal drugs.^{124,125,126} Clearly some drug sales habits in the commercial sector are difficult to change, and training may not overcome commercial incentives.¹²⁵ In addition, although ORT is appropriate for both watery diarrhea and dysentery, it was primarily in regard to the former that behavior changed, showing that Medicine Sellers hold cultural perceptions that differentiate appropriate responses to these conditions.¹²⁷

It should be noted that a pilot PPD study described herein did include both chloroquine for malaria and cotrimoxazole for ARI,⁴ since the focus was on febrile illness. Sales of cotrimoxazole were relatively small, possibly indicating that Medicine Sellers were able to distinguish when an antibiotic was needed and used them judiciously. Medicine Sellers in the Philippines did reduce sales of some antibiotics for children “for safety reasons” after being trained, compared to a control group, although there was some relapse.¹²⁸ In Viet Nam problems of antibiotic sales leading to resistance were observed. Sales clerks, not trained pharmacists, ran many pharmacy shops. While interviews reported only 20% prescribed antibiotics, observations revealed the proportion to be as high as 80%. Training resulted in reduced prescription and greater referral in the case of ARI, and the importance of having case management standards was stressed.¹²⁹

8. DISCUSSION

8.1 Few Medicine Seller Interventions Exist

The key finding of this review is first and foremost that there are few reported studies or projects that included working with Medicine Sellers in Africa to improve treatment of malaria in children. In fact, the authors could find only 14 that have been reported to date. This is in sharp contrast to the numerous published articles that not only document community utilization of Medicine Sellers, but also subsequently recommend that intervention should follow. In addition, of the 15 identified projects (including the one on diarrhea), not all focus exclusively on Medicine Sellers, and only about two-thirds are at a stage where outcomes have been reported. Thus the lessons learned in this review process are at best tentative and should be used to stimulate funding for further operational or intervention research to identify how efforts to improve the role of Medicine Sellers in community health care can be appropriately improved.

The review supports the position that interventions involving Medicine Sellers do offer immediate and practical opportunities for improving malaria treatment. It is possible to increase the proportion of caregivers who, when seeking treatment from Medicine Sellers, do receive appropriate advice and do buy age appropriate doses of recommended antimalarials for their children. There is, however, insufficient socioeconomic data to determine exactly which groups might benefit the most. It is possible that Medicine Seller interventions would help achieve the Abuja target of making appropriate treatment available and accessible to the poorest groups in the community.

8.2 Success in Behavior Change and Role Change Interventions

Medicine Sellers are first and foremost business men and women. Interventions to change Medicine Sellers appear to focus at two levels: behavior change and role change. Behavior change interventions focus on improved sales practices such as selling an effective antimalarial drug or not selling antibiotics. Although most Medicine Seller-customer interactions involve simply selling what the customer demands, some Medicine Sellers do respond to customer questions and ask questions and give advice on their own. Thus, another example of behavior change would be interventions that encourage Medicine Sellers to ask appropriate questions, for example the age of the child and the symptoms, so that the appropriate drug or dose is sold. Interventions using PPDs exemplify the behavior change approach. These interventions can provide short-term and relatively rapid responses to a focused problem, for example ensuring that children get the correct antimalarial drug promptly.

Role change interventions train Medicine Sellers to be active health care providers, as evidenced in the various franchising studies. The choice of level depends on public policy needs. If the policy goal is to ensure that Medicine Sellers complement the formal health sector, behavior change interventions may be most appropriate. On the other hand, if there is desire to increase access to quality health care to underserved populations, role change interventions may be more appropriate. In the latter case, enabling legislation may be needed in order to legitimize an expanded role for the Medicine Seller. Role change interventions may raise the status and competencies of Medicine Sellers to that of health auxiliaries and are exemplified in the various franchising models. Role change interventions are more long term in nature and address broader health systems issues.

Behavior change interventions may be quite useful to help achieve Abuja targets in the short term, and role change interventions may be helpful for longer-term improvement of health systems. Whatever the policy goal, given the varied commercial and public health systems that exist, health planners must understand and detail the interaction of the different contributors to health care provision. This includes identifying the comparative advantages of the different contributors in particular situations and how their particular skills can be harnessed and enhanced to improve child survival.

There is insufficient evidence to conclude that any one approach to working with Medicine Sellers is superior to any other. Similarly, it is not possible to quantify any additional benefits of adding community-

based activities such as demand creation or the distribution of BCC materials to an intervention to train shopkeepers. Trials to test the alternative ways of improving the care that a child with fever receives in an environment where a significant proportion of episodes are treated with drugs from private retailers do not exist.

8.3 Training Has Impact, but Extent Is Unknown

It is clear that training alone can improve drug retailer knowledge about malaria, but the impact that this knowledge has on practice is uncertain. Where training, monitoring, supervision, and refresher training are provided, changes in practice can be observed and even maintained: the proportion of retailers who stock approved drugs, ask about the age and condition of the child, dispense age appropriate dosages, and advise caregivers about referral can be improved. Yet, despite the impressive changes possible, it is also clear that Medicine Seller and community education alone will not achieve all the improvements in fever management that are required. After these interventions, large numbers of children with fever still will not get adequate early treatment because, even in areas where Medicine Sellers are numerous, 40% to 50% of fever cases do not seek treatment from Medicine Sellers, and of those that do, a large percentage do not receive appropriate care.^{1,11,12} Part of the reason for this persistence of inadequate treatment is that drugs are often of poor quality. So, we should not undervalue those interventions that have sought to increase the availability of Good Manufacturing Practice (GMP) drugs through managed supply chains.⁶⁻⁸

Where community knowledge about malaria has increased and community health workers are available, a small decline in care seeking from Medicine Sellers was observed. The change appears to be moderated by geographic location and the availability of alternative sources of care. It is also likely that different economic environments will provoke different care-seeking preferences, but the findings emphasize the importance of choice and the concurrent activities of different providers. The results also probably reflect the commercial pressures that influence drug trading in Sub Saharan Africa and that are poorly understood. The situation analyses that preceded all the interventions show that Medicine Sellers are widely used by caregivers, that they are abundant in many urban areas, that they have limited coverage in very rural communities and that they are generally poorly informed about the drugs that they sell. At the same time, drug selling on a small scale is not a secure business. Drug shops are often subject to high attrition rates; up to 50% of Medicine Sellers may cease trading in any one year, whether they are trained during educational outreach or not.^{14,130} Thus, if a Medicine Seller intervention is to have sustained public health benefits, it should be part of an inclusive approach to improving community treatment and may also ensure sufficient commercial benefits to increase Medicine Sellers' chances of staying in business.

8.4 Cost Effectiveness Evidence Remains Scarce

The evidence of cost and cost effectiveness of the different types of interventions remains scarce. The level of investment required depends on the complexity of the product that is delivered. But the delivery of Medicine Seller interventions should not be isolated from other parts of the IMCI/RBM approach to improving early treatment of malaria and should be part of Community-IMCI. Thus, where other interventions are planned and funded, the addition of Medicine Seller-specific activities may cost relatively little yet have the potential to significantly enhance the overall impact. This is especially true where the existing systems for drug quality assurance are weak and rapid methods for encouraging the use of specific or new proprietary brands (such as for ACT) are required.

For Medicine Seller interventions to be taken to regional, provincial, or national scale, financial costs will need to be minimized. In the reported interventions, cost reduction has generally been achieved by minimizing the expectations for *per diems* and remuneration and by using existing local government health officials as facilitators and supervisors. The real opportunity costs are thus offset for the government against potential reductions in treatment costs at health facilities and for the Medicine Sellers by anticipated increases in profits.

8.5 Local Health Management Team Involvement is Crucial

The involvement of local government health management teams is also crucial if large-scale funding is to be obtained. With health sector reform and decentralization spreading across Africa, health budgets, including donor funds, are increasingly being channeled from ministries of finance and ministries of health to budget holders at local government or district level. These budget holders are now seeking ways to achieve strategic development of health systems that ensure improved service quality at formal health facilities. But strategic development takes time; if governments are committed to poverty reduction strategies that require significant progress towards achieving the MDGs, concurrent, tactical, and pragmatic activities are urgently needed in order to achieve rapid improvements in health outcomes. As large improvements in child survival will not be achieved until childhood and maternal malaria is addressed, and halting the incidence of malaria is itself a specific target of the MDGs, the choice of possible interventions is not extensive. Behavior change interventions for Medicine Sellers appear to be attractive possible solutions.

8.6 National Government Accountability for Regulation and Compliance

National governments at the same time as sponsoring health sector reform retain the responsibility for regulation and ensuring that the health needs of their people are met. They must also ensure compliance with internationally agreed targets. So it is important to remember that market failure in the supply of drug treatments for malaria has contributed to the appalling malaria case outcomes to date. If Medicine Seller interventions were to be adopted and performance did not improve, then governments would come under pressure to regulate the industry by imposing strong and enforceable legislation to curb the unrestrained behavior of Medicine Sellers and other drug retailers. The ADDO franchise model, if policed satisfactorily, might offer an alternative way for the OTC drug trade to go.

9. CONCLUSIONS AND RECOMMENDATIONS

The review has shown that interventions that have provided training to Medicine Sellers and generated demand for recommended antimalarial drugs offer both short- and long-term opportunities to improve child survival. The evidence to support best practices is incomplete, but there are lessons that policy makers must be aware of if progress towards MDG and Abuja targets is to be made. The lessons should also be taken into account when planning the best way to introduce ACT into national formularies.

Because of professional, financial, and epidemiological concerns, many governments may wish to keep ACT dispensing within the purview of the formal health sector. Medicine Sellers are, however, fully involved in the distribution and sale of existing antimalarials and, if experience is any guide, ACTs will find their way onto shop inventories once there is consumer demand, whether or not this is desirable from a public health perspective. We have not explored the philosophies behind the desirability of home-based management or the inclusion of ACTs for home-based management of malaria, once they become recommended for first line treatment. This review attempts to clarify the things that are known about working with Medicine Sellers so that their potential contribution to this new phase of malaria control can be realized and opportunities will not be wasted.

9.1 Gaps in Knowledge Concerning Medicine Seller Interventions

This review identified some of the gaps in our knowledge, in particular, the lack of strong evaluation designs in most of the 15 projects and the small number of projects accessible for review makes it difficult to say with certainty which are the most effective interventions in particular settings. Two examples are outlined below.

Impact of Knowledge Change on Practice and Child Survival

Knowledge and practice are frequently poorly associated. This review confirms that it is hard to modify peoples' practices simply by improving knowledge. It is also difficult to evaluate the outcome of such practices even if they can be changed. The Kilifi trial comes closest to establishing that the actual dose received by a sick child can be modified, but the authors do not claim any impact on child survival as a result of the intervention, nor do they suggest that their model is ideal.¹

Associations between Medicine Seller interventions and improved child survival will be difficult to prove. Linkages between improved home-based management of fever and child survival, derived from evaluations of the community component of IMCI, on the other hand should be possible. Such linkages, if adequately described and packaged, could provide the evidence that is required for inclusion of Medicine Sellers in national policies so that interventions would be adopted and funded by district planners.

Impact of BCC Materials

Significant effort has been made in most interventions to produce BCC materials either for caregivers or Medicine Sellers or both, yet surprisingly few attempts have been made to evaluate and report on the comparative usefulness of these materials as a discrete component of the interventions. Good practice requires that all BCC materials should be pre-tested before being distributed and this is usually reported; pre-testing is necessary but it is not sufficient. BCC materials to support Medicine Seller interventions are expensive; in order to justify production costs evidence is required on which types of materials and activities yield not just improvements in knowledge but also changes in treatment practice.

Some indication of the downstream benefits of print materials might be obtained through follow-up evaluation of community practices once existing materials have been exhausted or in areas where there was minimal coverage with the original materials. Whatever the outcome of such follow up, future funding should provide for specific evaluation of the impact of BCC materials on practice as well as knowledge.

9.2 General Conclusions

- Medicine Sellers offer a service to patients that is widely used but generally of poor quality. Well-planned and targeted interventions to improve Medicine Sellers' practices can increase the chances that a patient will receive the correct dose of a recommended antimalarial drug. Therefore, when considering national plans to improve the home management of malaria, it would be imprudent to ignore any large existing cadre of drug retailers, if the Abuja and MDG targets are to be realized.
- Effective interventions require a combination of approaches in addition to quality and training.
- Client knowledge is a strong determinant of the outcome when drugs are bought from a retailer, so concurrent community information and education programs should increase the chances of children receiving appropriate treatment for malaria after Medicine Seller training. The role of Medicine Sellers in community education must not be overlooked as they have been found to be a major source of information.¹¹
- Medicine Sellers are interested in participating in training programs for various reasons, including increased prestige, increased profits, and knowledge. Medicine Sellers are enthusiastic about innovations and are ready and able to carry and sell PPDs if they are readily available and there is demand in the market place.
- PPDs make it easier for Medicine Sellers to provide the correct medicines and dosages. Demand for PPDs can be generated through commercial marketing strategies. Consumers will use PPDs if they perceive clear advantages and have confidence that the drugs are effective, safe, and readily available.
- Where quality assurance is impossible, the argument for government control and regulation to protect the consumer is strong, but regulation often does not work in practice. Continued use of the informal private sector demands that alternative strategies are required to address this market failure.
- Human behavior is not always predictable and will not always guarantee the best outcome. It is therefore important to realize that a medical analytical approach will probably not generate all the questions nor provide all the answers required to overcome the problems of improving home-based use of antimalarials. Ethnographic approaches expanding on the few participatory interventions may prove fruitful.
- As with other behavior change activities, a large knowledge-to-practice gap often persists after training Medicine Sellers. Some Medicine Seller behaviors are relative easy to change (e.g., substituting PPDs for loose tablets), while other changes require a more proactive stance (e.g., asking more questions about customer symptoms and characteristics) or challenge existing motives (e.g., selling antibiotics in response to consumer demand and profits). The gap can be minimized through ongoing refresher training, continued monitoring of performance, supervision of trained Medicine Sellers, and peer involvement in clarifying values and norms.

9.3 Specific Lessons for Intervention Planners

Three key partners need to be involved in any intervention: the consumer/community, the Medicine Sellers, and government planning and regulatory agencies. These key partners can be supported by donor agencies and NGOs. Specific lessons for these partners are outlined below. What is most important to realize is that the different projects reviewed herein represent different levels of commitment and resources in both the long and short term, and range from short behavior change courses on malaria case management to long-term role and system changes in the form of developing a franchise movement. Obviously, lessons from these 15 studies need to be adapted to the resources and policy goals in the countries and communities concerned.

- Interventions that are able to focus training resources on Medicine Sellers who will remain active are likely to have a more sustainable outcome and be more cost effective.
- Improved understanding of the entry and exit barriers for Medicine Sellers will assist planners to channel resources for training at the most appropriate target groups.

- Medicine Sellers are already active in many communities and, unless significant changes in infrastructure are expected (as in the case of establishing franchise networks), do not require investment of external funds to establish outlets.
- Political support from central and local officials is essential if Medicine Seller interventions are to succeed.
- Active participation from local government health staff in the planning and execution of Medicine Seller interventions increase the chances of interventions being sustained.
- Rapid coverage of large numbers of retailers is possible through brief, highly focused training.
- The more complex the message to be conveyed to and retained by Medicine Sellers, a longer training period to be required. Interventions designed to increase the diagnostic discrimination of Medicine Sellers will take longer and cost more than simple interventions designed to encourage the sale of recommended antimalarials.
- Short training courses for Medicine Sellers do not appear to be successful in modifying referral practices for severe malaria.
- Existing pharmaceutical supply chains can respond to change in demand from Medicine Sellers resulting in improved access to recommended, quality antimalarials in rural villages.
- Sustained improvements in caregiver/Medicine Sellers interactions are most likely where continued supervision and monitoring is planned and provided for.
- Participation from trusted Medicine Sellers in problem identification and curriculum development will increase the motivation for Medicine Sellers to participate in the intervention.
- Where individuals within communities have access to sources of treatment that they trust, they are likely to use them, whether or not the care given is appropriate.
- Complementary activities to improve Medicine Seller practices and increase caregiver knowledge increases the overall improvement in appropriate management of childhood malaria.

9.4 Summary of Intervention Components

Finally, a summary table is presented to outline some of the main intervention components used to implement both short- and long-term Medicine Seller interventions as seen in the 15 reviewed studies. As noted throughout, the evaluation processes in these studies do not fully answer questions about effectiveness. Therefore the intervention components in the table are suggestive only and if implemented, need to be carefully monitored and evaluated.

Table 3. Intervention Components for Short-Term Behavior Change vs. Long-Term Role Change

Relatively Rapid but Limited Change in Case Management Practices	Longer-Term Change in Medicine Seller Roles to Enhance Health Systems
<ul style="list-style-type: none"> • Medicine Seller inventory • Medicine Seller involvement, e.g. through association • TOT/Master trainers: health workers, Medicine Sellers, or others • Short training: workshops, seminars • National treatment guidelines • Pre-packaged Drugs in age-specific packets • Supportive BCC materials in the form of job aids, hand-outs for customers • Follow-up supervision by health workers, Medicine Sellers, or others 	<ul style="list-style-type: none"> • Standards of practice • Recruitment criteria • Franchising procedures • Detailed training courses • Treatment standing orders • Record keeping and accountability systems • Branding, logos, and identification • Credit facilities • Central drug stocks of quality at reasonable price • Follow-up supervision

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Note: References 1–15 are the 15 interventions covered in the review and described in Annexes 1 and 2

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ANNEX 1. ANNOTATED BIBLIOGRAPHY OF INFORMAL PRIVATE SECTOR STUDIES: MEDICINE SELLERS (PATENT MEDICINE VENDORS) IN SUPPORT OF ROLLING BACK MALARIA IN AFRICA

This bibliography is an annex of abstracts of documents and articles reviewed in the main paper. The documents are grouped in three sections. The first contains the 15 main studies that concern Medicine Seller/IPSP interventions that relate to child illness management in Africa. The second section includes studies involving Medicine Sellers who either are focusing on issues other than child health (e.g. reproductive health commodities), are based outside Africa (e.g. Brazil, Thailand) or consist of cadres other than Medicine Sellers but are not within the formal government sphere (e.g. village health workers within NGO or research projects). Most of the abstracts presented here are those found on Medline or in the executive summaries of agency reports. Short reports found in newsletters are usually quoted in full. The third section provides references on 'contextual' issues such as pharmacy law, home care norms and government support for Medicine Sellers.

Section 1: Interventions Involving Medicine Sellers in Malaria and Child Health in Africa

Projects described in the first section of this bibliography fit most aspects of the inclusion criteria for this review. All are based in Africa. All involved non-formal providers in the form of Medicine Sellers (Patent Medicine Vendors), although Medicine Sellers may share the stage with other agents. All projects also are focused on child illnesses generally, and most on malaria or febrile illness specifically.

The projects are grouped in three main categories, although there is some overlap. The first set of five projects was designed and implemented as intervention research and attempted to document to varying degrees changes in Medicine Seller and consumer behavior. A second group of three projects describe franchising programs that are intended to be self-sustaining. The third set with seven projects, which all had donor support, are programmatic implementation with an evaluation component, and serve as potential demonstration or pilot efforts that could be incorporated into larger scale public health programming.

Each entry begins with a table that lists the name of the project and the country where it was based. There are three levels of Medicine Seller Focus denoted, central or primary, major along with other groups and activities, and partial or an adjunct to a main community health focus. Projects are also classified by numbers of Medicine Sellers involved. Small projects involved less than 100 Medicine Sellers. Medium ones included 100-499 Medicine Sellers, while large projects worked with 500 or more Medicine Sellers. Three levels of evaluation were encountered in these projects. Some simply reported on the process. Others monitored changes in Medicine Seller behavior such as record keeping, appropriate treatment and sales figures. A third group of projects included outcome evaluation of changes in consumer behavior in addition to the preceding two levels.

Finally, projects are identified by four main intervention components. First was training/capacity building, which was achieved through three main activities, 1) workshops, courses and orientations, 2) peer or in-shop education and 3) supportive instructional materials and job aids. A second aspect, enabling environment for improved Medicine Seller practice, had three possible components, 1) the quality and packaging of drugs, 2) drug policies and regulations, and 3) credit facilities for shopkeepers. Demand generation was addressed with two approaches. Seven projects included mass media or public information components. Finally, quality assurance was addressed in four main ways: 1) franchising or accrediting, 2) consumer accountability, 3) involving a Medicine Seller association and 4) monitoring and supervision.

Group A: Projects with a Research Focus

Project 1

Name	Improving Home Management of Fever through Shopkeeper Training	Intervention Components	
Country	Kenya	Training/Capacity	4
Medicine Seller Focus	Central	Enabling Environment	
Medicine Seller Numbers	Medium	Demand Generation	4
Evaluation	Outcome	Quality Assurance	

Document 1:

Changing home treatment of childhood fevers by training shopkeepers in rural Kenya. Marsh VM, Mutemi WM, Muturi J, Haaland A, Watkins WM, Otieno G, Marsh K. *Trop Med Int Health* 1999; 4(5): 383-9.

Abstract 1:

BACKGROUND: Malaria control in Africa relies primarily on early effective treatment for clinical disease, but most early treatments for fever occur through self-medication with shop-bought drugs. Lack of information to community members on over-the-counter drug use has led to widespread ineffective treatment of fevers, increased risks of drug toxicity and accelerating drug resistance. We examined the feasibility and measured the likely impact of training shopkeepers in rural Africa on community drug use. **METHODS:** In a rural area of coastal Kenya, we implemented a shopkeeper training program in 23 shops serving a population of approximately 3500, based on formative research within the community. We evaluated the training by measuring changes in the proportions of drug sales where an adequate amount of chloroquine was purchased and in the percentage of home-treated childhood fevers given an adequate amount of chloroquine. The program was assessed qualitatively in the community following the shopkeeper training.

Training included 36 shopkeepers from 23 shops for a 3-day session. Training emphasized active learning and practical skills. Content focused on the usual brand name drugs that shopkeepers sold. They were taught to communicate with purchasers about correct use and dosages. They were provided with a rubber stamp to make packets with and remind purchasers about correct doses. The symptoms that would require referral were reviewed.

RESULTS: The percentage of drug sales for children with fever that included an antimalarial drug rose from 34.3% (95% CI 28.9%-40.1%) before the training to a minimum of 79.3% (95% CI 71.8%-85.3%) after the training. The percentage of antimalarial drug sales where an adequate amount of drug was purchased rose from 31.8% (95% CI 26.6%-37.6%) to a minimum of 82.9% (95% CI 76.3%-87.3%). The percentage of childhood fevers where an adequate dose of chloroquine was given to the child rose from 3.7% (95% CI 1.2%-9.7%) before the training to a minimum of 65.2% (95% CI 57.7%-72.0%) afterwards, which represents an increase in the appropriate use of over-the-counter chloroquine by at least 62% (95% CI 53.7%-69.3%). Shopkeepers and community members were strongly supportive of the aims and outcome of the program.

CONCLUSIONS: The large shifts in behavior observed indicate that the approach of training shopkeepers as a channel for information to the community is both feasible and likely to have a significant impact. Whilst some of the impact seen may be attributable to research effects in a relatively small scale pilot study, the magnitude of the changes support further investigation into this approach as a potentially important new strategy in malaria control.

Document 2:

On the malaria frontline. Chris Hogg, BBC - Thursday, 3 October, 2002, 06:57 GMT 07:57 UK
<http://news.bbc.co.uk/1/hi/health/2293711.stm>.

Abstract 2:

The village shopkeeper Harrison Koi has been trained to spot the symptoms of a malarial fever and sell the appropriate drugs to treat it. Early intervention can mean the difference between life and death. Wilfred Mutemi from Kenya's ministry of health says it's more realistic than expecting mothers to travel long distances to a hospital. "We train them basically to discuss with the mother the signs that the mothers have noticed in their children when they come to buy drugs. "They should be able to identify what drugs they should give these fevers for every fever they should add an anti-malarial drug and an adequate dose for that fever."

Document 3:

Improving malaria home treatment by training drug retailers in rural Kenya Marsh VM¹, Mutemi WM, Willetts A, Bayah K, Were S, Ross A and Marsh K. *Tropical Medicine and International Health* volume 2004; 9(4): 451-460.

Abstract 3:

Recent global malaria control initiatives highlight the potential role of drug retailers to improve access to early effective malaria treatment. We report on the findings and discuss the implications of an educational programme for rural drug retailers and communities in Kenya between 1998 and 2001 in a study population of 70,000. Impact was evaluated through annual household surveys of over-the-counter (OTC) drug use and simulated retail client surveys in an early (1999) and a late (2000) implementation area. The programme achieved major improvements in drug selling practices. The proportion of OTC anti-malarial drug users receiving an adequate dose rose from 8% (n=98) to 33% (n=121) between 1998 and 1999 in the early implementation area. By 2001, and with the introduction of sulphadoxine pyrimethamine group drugs in accordance with national policy, this proportion rose to 64% (n=441) across the early and late implementation areas. Overall, the proportion of shop-treated childhood fevers receiving an adequate dose of a recommended anti-malarial drug within 24 hours rose from 1% (n=681) to 28% (n=919) by 2001. These findings strongly support the inclusion of private drug retailers in control strategies aiming to improve prompt effective treatment of malaria.

Document 4:

The cost-effectiveness of improving malaria home management: shopkeeper training in rural Kenya C. A. Goodman, W. M. Mutemi, E. K. Baya, A. Willetts, and V. Marsh. (submitted for publication).

Abstract 4:

Home management is a very common approach to the treatment of illnesses such as malaria, acute respiratory infections, tuberculosis, diarrhea and sexually transmitted infections, frequently through over-the-counter purchase of drugs from shops. Inappropriate drugs and doses are often obtained, but interventions to improve treatment quality are rare. An educational programme for general shopkeepers and communities in Kilifi District, rural Kenya was associated with major improvements in the use of over-the-counter anti-malarial drugs for childhood fevers. The two main components were workshop training for drug retailers, and community information activities, with impact maintained through on-going refresher training, monitoring and community mobilization. This paper presents the cost and cost-effectiveness of the programme, evaluating both its measured cost-effectiveness in the first area of implementation (early implementation phase), and the estimated cost-effectiveness of the programme recommended for district-level implementation (recommended district programme). The proportion of shop-treated childhood fevers receiving an adequate amount of a recommended antimalarial rose from 2% to 15% in the early implementation phase, at an economic cost of \$4.00 per additional appropriately treated case (year 2000

US\$). If the same impact were achieved through the recommended district programme, the economic cost per additional appropriately treated case would be \$0.84, varying between \$0.37 and \$1.36 in the sensitivity analysis. As with most educational approaches, the programme carries a relatively high initial financial cost, of \$11,477 (\$0.02 per capita) for the development phase, and \$81,450 (\$0.17 per capita) for the set up year, which would be particularly suitable for donor funding, while the annual costs of \$18,129 (\$0.04 per capita) thereafter could be contained within the budget of a typical District. To reach the Abuja target of 60% of those suffering from malaria in sub-Saharan Africa having access to affordable and appropriate treatment within 24 hours, improvements in community-based malaria treatment are urgently required. From these results policymakers can estimate costs for district-scale shopkeeper training programmes, and will be able to assess their relative cost-effectiveness as comparable evaluations become available from home management interventions in the future.

Project 2

Name	Primary Care Training for Patent Medicine Vendors	Intervention Components	
Country	Nigeria	Training/Capacity	4
Medicine Seller Focus	Central	Enabling Environment	
Medicine Seller Numbers	Small	Demand Generation	
Evaluation	Outcome	Quality Assurance	4

Document:

Primary care training for patent medicine vendors in rural Nigeria. Oshiname FO; Brieger WR *Social Science and Medicine*. 1992; 35(12): 1477-84.

Abstract:

The provision of essential drugs and the involvement of various potential and existing health care providers (e.g. teachers and traditional healers) are 2 important primary health care strategies. One local group that is already actively supplying the medication needs of the community is the patent medicine vendors (PMVs), but the formal health establishment often views their activities with alarm. One way to improve the quality of the PMVs' contribution to primary care is through training, since no formal course is required of them before they are issued a license by government. Primary care training was offered to the 49 members of the Patent Medicine Sellers Association of Igbo-Ora, a small town in western Nigeria. Baseline information was gathered through interview, observation and pretest. A training committee of Association members helped prioritize training needs and manage training logistics, 37 members and their apprentices underwent the 8 weekly 2-hour sessions on recognition and treatment (including non-drug therapies) for malaria, diarrhea, guinea worm, sexually transmitted diseases, respiratory infections, and malnutrition, plus sessions on reading doctor's prescriptions, limitations of their work, referral and medication counseling. The group scored significantly higher at post-test and also showed significant gains over a control group of PMVs from another town in the district. The Igbo-Ora experience shows that PMVs can improve their health care knowledge and thus increase their potential value as primary health care team members.

Project 3

Name	Face-to-Face Educational Outreach	Intervention Components	
Country	Kenya (and Indonesia)	Training/Capacity	4
Medicine Seller Focus	Major	Enabling Environment	
Medicine Seller Numbers	Medium	Demand Generation	
Evaluation	Outcome	Quality Assurance	

Document 1:

The impact of face-to-face educational outreach on diarrhoea treatment in pharmacies. Ross-Degnan D, Soumerai SB, Goel PK, Bates J, Makhulo J, Dondi N, Sutoto, Adi D, Ferraz-Tabor L, Hogan R. Health Policy Plan. 1996;11(3): 308-18. Department of Ambulatory Care and Prevention, Harvard Medical School, Boston, USA.

Abstract 1:

Private pharmacies are an important source of health care in developing countries. A number of studies have documented deficiencies in treatment, but little has been done to improve practices. We conducted two controlled trials to determine the efficacy of face-to-face educational outreach in improving communication and product sales for cases of diarrhea in children in 194 private pharmacies in two developing countries. A training guide was developed to enable a national diarrhea control programme to identify problems and their causes in pharmacies, using quantitative and qualitative research methods. The guide also facilitates the design, implementation, and evaluation of an educational intervention, which includes brief one-on-one meetings between diarrhea programme educators and pharmacists/owners, followed by one small group training session with all counter attendants working in the pharmacies. We evaluated the short-term impact of this intervention using a before-and-after comparison group design in Kenya, and a randomized controlled design in Indonesia, with the pharmacy as unit of analysis in both countries (n = 107 pharmacies in Kenya; n = 87 in Indonesia). Using trained surrogate patients posing as mothers of a child under five with diarrhea, we measured sales of oral rehydration salts (ORS); sales of antidiarrheal agents; and history taking and advice to continue fluids and food. We also measured knowledge about dehydration and drugs to treat diarrhea among Kenyan pharmacy employees after training. Major discrepancies were found at baseline between reported and observed behavior. For example, 66% of pharmacy attendants in Kenya, and 53% in Indonesia, reported selling ORS for the previous case of child diarrhea, but in only 33% and 5% of surrogate patient visits was ORS actually sold for such cases. After training, there was a significant increase in knowledge about diarrhea and its treatment among counter attendants in Kenya, where these changes were measured. Sales of ORS in intervention pharmacies increased by an average of 30% in Kenya (almost a two-fold increase) and 21% in Indonesia compared to controls (p < 0.05); antidiarrheal sales declined by an average of 15% in Kenya and 20% in Indonesia compared to controls (p < 0.05). There was a trend toward increased communication in both countries, and in Kenya we observed significant increases in discussion of dehydration during pharmacy visits (p < 0.05). We conclude that face-to-face training of pharmacy attendants which targets deficits in knowledge and specific problem behaviors can result in significant short-term improvements in product sales and communication with customers. The positive effects and cost-effectiveness of such programmes need to be tested over a longer period for other health problems and in other countries.

Controlled trials in Kenya and Indonesia documented the efficacy of face-to-face educational outreach in improving the response of private pharmacists to childhood diarrhea. Previous research had indicated that pharmacists in developing countries often lack scientific information about diarrhea and its treatment and face pressure from drug companies to sell specific products, including antidiarrheals and antibiotics. The

World Health Organization Program for the Control of Diarrheal Diseases (WHO-CDD) Guide for Improving Diarrhea Treatment Practices of Pharmacists and Licensed Drug Sellers was used in one-to-one meetings between owners and employees in 194 pharmacies and diarrhea program educators. Pharmacists and counter attendants were provided with materials promoting oral rehydration solution (ORS), instruction on the indications for medication, and training in effective communication techniques. Trained surrogate patients posing as mothers of a young child with diarrhea were used to validate pharmacist self-reports. Before training, 67% of staff in Kenya but only 16% of those in Indonesia considered fluid replacement to be the most essential aspect of diarrhea treatment. At baseline, 66% of pharmacists in Kenya and 53% of those in Indonesia reported they sold ORS to the last customer having a child with diarrhea; however, only 33% of surrogate patients in Kenya and 5% in Indonesia were actually sold ORS. Moreover, 48% of surrogate patients in Kenya and 74% in Indonesia were sold antidiarrheal medications. Focus group discussions indicated that both pharmacists and their customers felt something stronger than ORS was needed to stop diarrhea and acknowledged that drug sales netted higher profits than ORS sales. After training, however, ORS sales increased by an average of 30% in Kenya and 20% in Indonesia and there was a trend toward increased questioning of customers, especially about signs of bacterial diarrhea.

Document 2:

Working with pharmacists in Kenya. Pradeep Gael, Joseph Makhulo and Gifau Mwangi describe Kenya's experience of field-testing a WHO guide on training private sector pharmacists. Dialogue on Diarrhea, issue no. 55, December 1993-February 1994. Published by AHRTAG in the UK.

Abstract 2:

A typical urban retail pharmacy in Kenya is visited by anywhere between 10 and 99 customers a day with health problems but no prescription from a doctor. In small towns with fewer doctors, the number may be even greater. Kenya's diarrhoeal disease control (CDD) programme used the WHO guide to carry out a training programme to improve advice given by pharmacists and their assistants about managing diarrhea. From the start, the CDD programme involved the Pharmaceutical Society of Kenya, the Kenya Medical Training Center and the University of Nairobi. Kenya's capital, Nairobi, and five other towns were chosen as sites for the training programme. The range of training methods included: one-to-one discussions with an opinion leader within a pharmacy (e.g. pharmacy owners); one-to-one discussions with pharmacists; and small group training sessions for pharmaceutical assistants. Four types of printed materials were used after pre-testing: two pamphlets for pharmacy staff (one on ORS and the other on antidiarrheals); a general pamphlet for customers; and a wall poster. Small group training sessions were found to be the most effective method because unlike in large seminars, attention could be paid to individual needs. Importantly small groups allowed discussion of constraints in applying recommendations. Role-plays on advising customers were acted out. The pilot phase of the training has been completed: 162 pharmaceutical assistants in 90 pharmacies have received training.

Initial evaluation shows promising results. Questionnaires given to participants before and after training showed that training increased overall knowledge. Purchase surveys in five towns showed that ORS sales increased by 24-32 per cent, while sales of antidiarrheals decreased by 61-2 per cent. Several lessons can be learnt from Kenya's experience. It is important to find out why drug sellers behave as they do. In some cases, drug sellers may have adequate knowledge, but motivation may be the problem. Working out what sort of training will best meet the needs identified is also crucial. Pharmacy staff prefer the training to come from an independent and credible organization (such as WHO or UNICEF). The training should not appear as a threat. It is important to involve the professional association of pharmacists. The involvement of organizations and individuals outside the CDD program was vital. Producing printed materials is one of the most expensive parts of the intervention. Therefore, only one or two carefully designed printed materials should be used to convey the training messages. Dr Pradeep Gael, Dr Joseph Makhulo and Dr Gitau Mwangi, C/o Drug Management Programme, MSH, 165 Allandale Road, Boston MA 02130, USA.

Project 4

Name	Promoting Prepackaged Drugs – a community-based feasibility study	Intervention Components	
Country	Nigeria	Training/Capacity	4
Medicine Seller Focus	Major	Enabling Environment	4
Medicine Seller Numbers	Small	Demand Generation	4
Evaluation	Outcome	Quality Assurance	4

Document:

Promoting Prepackaged Drugs for Prompt and Appropriate Treatment of Febrile Illnesses in Rural Nigerian Communities. Brieger WR, Salako LA, Umeh RE, Agomo PU, Afolabi BM, Adeneye AK. *International Quarterly of Community Health Education* 2002-03; 21(1): 19-40.

Abstract:

Among the strategies being tested to improve prompt and appropriate treatment of febrile illness, especially malaria, in young children is the prepackaging of antimalarial drugs in easy to use daily dosages. A TDR-sponsored study in three rural communities in southern Nigeria tested a delivery system for prepackaged chloroquine and cotrimoxazole for children aged 6 months to 6 years. A variety of distributors were trained including village health workers (VHWs), patent medicine vendors (PMVs) and health clinic staff. These distributors also performed community health education. During a 12-month study period 3954 units of project medicines were sold. While VHWs accounted for the majority of distributors, and as a group sold the largest proportion of drugs overall, health staff sold the highest number on average.

A follow-up survey found a 25% increase in the use of antimalarials over baseline, almost all of which could be attributed to sales of the project chloroquine. While there was also an increased use of cotrimoxazole over baseline, the contribution of project drugs was less. PMVs remained the most common source of treatment both before and after intervention, and there was a small but significant rise in the proportion that sought care from VHWs. While 93% of respondents sought care for their sick child within 24 hours, there was significantly more delay among those whose first choice was a government or private clinic. Factors that were positively associated with use of project drugs included reports that the child had high temperature and seeking care from a VHW or PMV. The results indicate that it is possible to gain a significant market share for prepackaged drugs using locally available distribution channels. The value lies in using a variety of channels, both ones that are centrally located and others that are accessible to scattered, outlying communities that are poorly served by orthodox medicine.

Project 5

Name	Improved Household use of Chloroquine	Intervention Components	
Country	Zambia	Training/Capacity	4
Medicine Seller Focus	Partial	Enabling Environment	
Medicine Seller Numbers	Small	Demand Generation	4
Evaluation	Outcome	Quality Assurance	

Document:

Improving ability to identify malaria and correctly use chloroquine in children at household level in Nakonde District, Northern Province of Zambia. Frederick AD Kaona* and Mary Tuba. *Malaria Journal*, 2003; 2:43. <http://www.malariajournal.com/content/2/1/43>

Abstract:

BACKGROUND: This study investigated causes of malaria and how cases were managed at household level, in order to improve the ability to identify malaria and ensure correct use of chloroquine. It was conducted in Nakonde District, Northern Province of Zambia, between 2000 and 2001. Nakonde district is in a hyperendemic malaria province, where *Plasmodium falciparum* is predominant. The district has a total population of 153, 548 people, the majority of being peasant farmers. The main aim of the post intervention survey was to establish the proportion of caretakers of children five years and below, who were able to identify simple and severe malaria and treat it correctly using chloroquine in the home.

METHODS: A baseline survey was conducted in five wards divided into intervention and control. Intervention and control wards were compared. Village health motivators (VHMs) and medicine vendors were identified and trained in three intervention wards, as a channel through which information on correct chloroquine dose could be transmitted. VHMs educated caregivers to take sick children to Medicine Sellers. VHMs were supervised over a 6-month period. Before commencement of the intervention, all anti-malarial drug vendors were listed, and only those in the intervention wards (political boundaries) were recruited in the study. Patent Medicine Vendors were provided with dosage cards. Dose guides (dosage cards for 0-6 months, 7-11 months, 1-3 years and 4-5 years). Materials were developed according to the National Malaria Treatment Guidelines (NMTG). The project did not supply chloroquine (vendors had their own sources of supply). Environmental technologists employed by the government in the district, were engaged on the project. These supervised drug vendors within their boundaries as was their routine. This was important to ensure that all materials did not run out in the vendors' shops, and also take note of all those who may drop out or stop due to bankruptcy, migration or natural cause such as death. Costs during supervision included fuel, vehicle maintenance, fuel for motorcycles that were used by environmental technologists, insurance for vehicles and per diems for the project staff. During the follow-up survey a total of 575 child care givers, who were 15 years old and above and had a child who had suffered from malaria 14 days before the survey commenced, were interviewed. The two control wards received no intervention. 345 caretakers were from the intervention wards, while 230 came from the control wards. Identification of malaria and correct use of anti-malarial drugs was assessed in terms of household diagnosis of malaria in children under-five years, type and dose of anti-malarial drugs used, self medication and the source of these antimalarials.

RESULTS: The majority of respondents in the study were females (81%). Chloroquine was the most frequently used anti-malarial (48.5%) in both the intervention and control wards. There was no difference between the intervention and control wards at pre-intervention ($P = 0.266$ and $P = 0.956$), in the way mothers and other caretakers identified simple and severe malaria. At baseline, knowledge on correct chloroquine dosage in the under five children was comparable between intervention and control wards. Post-intervention revealed that mothers and other caretakers were 32% and 51%, respectively, more likely to identify simple and severe malaria. There was a 60% increase on correct chloroquine dosage in all age groups among caregivers living in post-intervention wards. **CONCLUSION:** Compliance with standard therapeutic doses and correct identification of malaria was poorest in control wards, where no motivators and vendors were trained.

Group B: Franchising Approaches

Project 6

Name	Accredited Drug Dispensing Outlets	Intervention Components	
Country	Tanzania	Training/Capacity	4
Medicine Seller Focus	Central	Enabling Environment	4
Medicine Seller Numbers	Small	Demand Generation	4
Evaluation	Process	Quality Assurance	4

Documents:

Accredited Drug Dispensing Outlets: A Novel Public-Private Partnership. M. Ndomondo-Sigonda *et al.* Tanzania Food and Drugs Authority, Tanzania, Healthscope, and MSH/SEAM. SEAM (Strategies for Enhancing Access to Medicines) Conference, Dar es Salaam, Tanzania, December 2003.

Abstracts:

(The following is a compilation of 6 abstracts presented on the project at the SEAM Conference.) An assessment of the Tanzanian pharmaceutical sector co-sponsored by the Ministry of the Health (MOH) and Management Sciences for Health, was carried out in April-May 2001. One conclusion reached on the basis of assessment findings was that there was a need to improve access to affordable, quality drugs and pharmaceutical services in retail drug outlets in areas where there are few or no registered pharmacies. People living in such areas typically purchase their medicines at Part II drug shops, popularly known as *duka la dawa baridi* (DLDB), although the quality of products and services is frequently poor and the DLDB are not licensed to sell prescription drugs.

The MOH/Tanzania Food and Drugs Authority, in collaboration with MSH/SEAM, have developed a pilot program to establish a network of accredited drug dispensing outlets (ADDOs) to provide selected essential medicines (nonprescription and prescription) and other health supplies in four districts in the Ruvuma Region. The ADDO program is using a combination of training, marketing, commercial incentives, inspection, and support strategies to address DLDB problems and transform the shops into a regulated system of profitable ADDOs providing a range of quality drugs and professional services to underserved populations. Appropriate, legally enforceable ADDO standards and a code of ethics were developed and approved by the Tanzania Food and Drugs Authority and Ministry of Health. The standard development process actively involved all stakeholders and covered all aspects of ADDO operations, including: (1) building design and layout; (2) personnel; (3) application and approvals procedure; (4) sanitation and hygiene; (5) training and continuing education; (6) drug list; (7) drug quality; (8) stock control and handling; (9) record keeping; (10) shop location; and (11) inspection and sanctions. A thorough understanding of ADDO standards and the code of ethics will be required of all ADDO owners and dispensers, and these are included in their respective training curricula.

All ADDO staff members must be accredited through a Tanzania Food and Drugs Authority– approved ADDO dispenser’s course developed and offered by the Muhimbili College of Health Sciences School of Pharmacy. The course provides basic dispenser training on ADDO-approved drugs, common indications and contraindications, common dosages, side effects, patient information, and effective communication skills. Training provided also covers the laws governing dispensing work, management and record keeping, and business ethics. Recertification at intervals will be required through completion of continuing-education programs. To encourage DLDB owners and others to open ADDOs and maintain the required standards, an array of incentives to stimulate business growth and development have been developed. Discussions with groups of DLDB owners and other stakeholders suggested that the most powerful incentives would be: (1) an

expanded drug list; (2) various economic enhancements; and (3) marketing and promotion campaigns to support and expand the ADDO markets. Here, we look at economic incentives, including the legal right to sell a limited range of prescription drugs; dispensing and business skills training; access to microfinancing; simplification of tax and business license fee liabilities; and links to health financing initiatives. For the ADDO program to succeed it will be essential to conduct an effective, government approved communications and marketing strategy to convince consumers, shop owners and sellers, and local government and community leaders to participate in the program. ADDO educational and advocacy campaigns based on current opinions and behaviors gathered through key stakeholder focus group discussions and key informant interviews were developed. Behavior change methodologies are described.

Project 7

Name	Child and Family Wellness Shops	Intervention Components	
Country	Kenya	Training/Capacity	4
Medicine Seller Focus	Central	Enabling Environment	4
Medicine Seller Numbers	Medium	Demand Generation	
Evaluation	Monitoring	Quality Assurance	4

Document:

CFWshops Project. Sustainable Healthcare Enterprise Foundation. Website:
<http://www.cfwshops.net/project.html> accessed 22 January 2004.

Abstract:

The Sustainable Healthcare enterprise Foundation (SHEF) is building a prototype retail micro-franchise distribution network for provision of essential drugs and basic health services in Kenya. The network targets the five to ten diseases causing 70-90 percent of morbidity and mortality among children and their families while also providing basic health services and other products. It combines proven micro-enterprise and franchise principles to enable qualified community health workers (CHWs) and nurses to own and operate drug shops and medical clinics in underserved areas. Legally qualified CHWs establish franchise CFWshops™ drug shops using the franchise operating system that SHEF has developed. Nurses establish medical clinics using a similar system. The franchise operating system includes rules that CHWs and nurses must follow (diagnostic, treatment, drug handling, etc.) as a condition of maintaining their valuable business opportunity. SHEF conducts field inspections to ensure compliance. The system is simple enough for CHWs and nurses to operate, yet imposes disciplined practices to ensure that high quality drugs and appropriate services are available to the community at affordable prices.

The CFWshops franchise system uses positive incentives to induce franchisees to deliver on policy objectives—improved access to high quality affordable drugs and basic health services. Franchisees receive the right to use the CFWshops brand; training; ready access to high quality, affordable drugs; operations support; access to network resources; continuing education; membership in a prestigious organization; and many other resources and services. Thanks to these benefits, franchisees usually enjoy a profitable business, leadership in their communities, and income to sustain their families. But, while SHEF offers a CHW or nurse a valuable opportunity, it also conditions enjoyment of the opportunity on compliance with strict clinical and business practice rules. If the franchisee breaks them, the franchise is revoked. So long as the value of the opportunity is greater than the value of breaking the rules, franchisees follow the rules and self regulate.

The Foundation was registered in Kenya in December, 1999 and opened the first 11 CFWshops in April 2000. These shops, all owned and run by Community Health Workers trained by the Christian Community Services (CCS) Mt. Kenya East – a division of the Anglican Church, are located in Kirinyaga and Mbeere districts. In 2001, an additional 16 outlets were opened, and in April 2003, SHEF added its first four CFWshops medical clinics. Clinics are franchised like the drug shops but are owned and operated by nurses who are able to supply a wider range of drugs and health services than may be provided by the CHW operated drug shops. Medical clinics support drug shops for patient referrals especially to address fevers and respiratory tract infections in children, and sexually transmitted illness and reproductive health needs of adults. To date, CFWshops have grown to about 60 outlets in four districts.

The qualified CHWs and nurses are provided with additional training by the Foundation to enable them run their shops according to franchise standards. This training has been improved over time with technical assistance received from Management Sciences for Health, an international consultancy organization well renowned in the field of health management. The training now covers four weeks, with weeklong modules on: business and franchise management, drug management, client management and community support initiatives.

As of December, 2003, SHEF has served more than 400,000 patient visits through its CFWshops and presently serves up to 20,000 patients per month—one third suffering from Malaria. Detailed patient records are maintained for each patient visit. Since the goal is to establish a self-sustaining model, drugs and other products are sold at competitive but affordable prices; although some drugs are given freely to those too poor to pay. All drugs and supplies are purchased centrally, principally from MEDS with bed-nets purchased from PSI. In addition to providing basic essential drugs as defined in the guidelines for Community Health Workers and nurses, the franchisees receive training and support for community health education and interventions to improve nutrition and hygiene in the community. The franchisees are actively involved in Ministry of Health initiatives in the district.

SHEF believes that the franchise operating system that enables it to improve access to other high quality drugs and services to treat other diseases can be adapted to meet the needs of HIV/AIDS patients. By the end of 2004, SHEF will incorporate HIV/AIDS care protocols into its operating system. Working with other community-based hospitals and health centers, CFWshops will offer prevention, education, and treatment support services to patients who otherwise lack access to life saving care and drugs.

SHEF’s mission is to prove-up the franchise model for provision of essential drugs and supplies to communities in a sustainable manner, and then promote it to other organizations that may wish to establish similar networks throughout the developing world.

Project 8

Name	CAREshops – Essential Medicines Franchise	Intervention Components	
Country	Ghana	Training/Capacity	4
Medicine Seller Focus	Central	Enabling Environment	4
Medicine Seller Numbers	Large	Demand Generation	4
Evaluation	Process	Quality Assurance	4

Document:

Essential Medicines Franchise: A Private Sector Approach to Public Health Services D. Mensah, E. Bruce, K. Eghan, and R. Staley. GSMF Enterprises Ltd., and Management Sciences for Health. Presented at the SEAM (Strategies for Enhancing Access to Medicines) Conference, Dar es Salaam, December 2003. Management Sciences for Health with a grant from the Bill and Melinda Gates Foundation.

Abstract:

In Ghana there are 1,000 Private Pharmacies, located mainly in urban areas, compared to over 5,000 Licensed Chemical sellers (LCS) operating mainly in rural and peri-urban areas and in 66 % of cases are first line providers of medicines. LCS come from a variety of backgrounds and, minimal technical knowledge is required for their operating license. This situation affects the quality and reliability of their services. The CAREshop project hopes to reach at least 10% of these LCS.

The CAREshop model is based on a “Customer-focused, Affordable, Reliable and Efficient shop.” The following summary is derived from three abstracts from the SEAM conference by the authors listed above as well as supportive documents provided by the Ghana Social Marketing Foundation Enterprises Limited. An initial country assessment of the Ghanaian pharmaceutical sector, carried out in June 2001 and co-sponsored by the Ministry of Health (MOH) and Management Sciences for Health, identified gaps in access to medicines caused by poor quality of services, unreliable availability of essential drugs, and a lack of affordability for much of the population. Following the assessment, a unique program was created to establish a network of franchise retail drug outlets to provide essential medicines and high-quality service to rural and peri-urban communities. The network would be built through the conversion of existing private retail drug shops, known as chemical sellers, into franchise shops. To date there are 135 CAREshops in the Volta and Eastern Regions, with plans to expand to other regions.

As a step toward improving access to essential medicines in Ghana, SEAM Ghana and GSMF International have joined to develop and implement a program seeking to convert 500 of existing Ghanaian private sector drug retail outlets (commonly known as chemical seller shops, or “chemical sellers”) into a franchise operation, running under the auspices of GSMF. The franchise concept is innovative and untested in Ghana as relates to the delivery of public health services. It entails the harnessing of private sector skills from “for-profit” organizations and applying these skills in concert with organizations whose mission is the provision of public service and/or other social purposes. The needs of professional support organizations also need to be incorporated into the process, and regulatory authorities involved in public health delivery must be included as well. One of the critical first steps toward building the program has been establishing relationships with these key groups, soliciting their ideas, and addressing their concerns in an effort to ensure support for the program among stakeholders.

The Ghana Ministry of Health identifies five objectives in its five-year workplan: 1) To improve quality of health delivery, 2) Increase access to health services, 3) To improve the efficiency of health service delivery, 4) To foster partnerships in improving health, and 5) To improve financing of the health sector. The franchising of the private shops known as chemical sellers, where much of the population buys its medicines, seeks to support these objectives through the private sector provision of health services, whereby a franchise organization will support a sustainable, self-financing, private sector initiative. There are four components of the program: 1) marketing, 2) training, 3) group purchasing and 4) quality service delivery. The success of the program depends, in significant part, on achieving customer loyalty and brand development—two relatively innovative concepts in public health services. Thus, the service providers, the franchisees, must achieve and maintain a critical mass of “customers” upon which their ongoing commercial sustainability depends. This need will be addressed through: (1) new business generated from the recognition of the “CAREshop” franchise brand as synonymous with consistent high-quality service; and (2) retaining the existing customer base through customer “loyalty” derived from satisfaction with previous service provided. CAREshop members can benefit from group purchasing and a marketing/image creation effort.

Group C: Donor Agency Supported Pilot Interventions

Project 9

Name	Community Partnerships for Health	Intervention Components	
Country	Nigeria	Training/Capacity	4
Medicine Seller Focus	Partial	Enabling Environment	
Medicine Seller Numbers	Medium	Demand Generation	4
Evaluation	Process	Quality Assurance	4

Document:

Lessons Learned and Impacts of the CPH Experience in Nigeria. Brieger WR, Ogunlade PB. Basic Support for Institutionalizing Child Survival (BASICS) Project/U.S. Agency for International Development. BASICS, Arlington, Virginia, 2001.

Abstract:

Between 1994 and 2001 BASICS has experimented with community and private health care provider partnerships in poor urban communities of three Nigerian cities in an attempt not only to fill service gaps for children, but also to empower communities to take responsibility for their own health. What resulted were 16 Community Partnerships for Health (CPHs) that involved dyads of private health care facilities (HCFs) and community based organizations (CBOs). This model worked well in the southern cities Lagos and Aba where western orthodox HCFs abounded, but in the northern city of Kano, effort was made to involve PMVs and indigenous healers as key health care providers. Initially it was envisioned that PMVs could become the third leg of a triad system. Experience has shown that they could not fulfill this role due to their peculiar organization, but they none-the-less made contributions to the CPH movement. Over the six years of active CPH functioning, most have grown.

This summary focuses on the experiences in Kano. Kano presented a challenge in that there was a scarcity of available and willing private HCFs to join the CPH and around which dyads can form. The idea was originally put forth that in Kano, patent medicine vendors (PMVs) would not only be included in the CPH, but could form a third leg on which triads would be formed. In reality, the multiplicity of individual shops with one or two staff did not make an appropriate and comparable institutional alternative to HCFs, and PMVs were more generally recognized in Kano collectively, as another association or member CBO. While the numbers of PMV members increased, the number of CBOs and orthodox HCFs has declined, according to official reports. What actually appears to have occurred is that the existing associations of PMVs in a community are considered to be CPH members in their status as another CBO, but one with special resources. Even though health care resources were scarce in the community, CPHs did not always welcome PMV members with open arms. This may stem from the fact that the bulk of proprietors belonged to a different ethnic group and had migrated from another part of the country to do business. A PMV from Gama-B CPH said that, "No participation from our members because we are never contacted as a member of the CPH, but we will only hear that a member has been chosen to attend and so without our elected officials knowledge which is very bad." We have a "communication gap." A PMV from Gwale offered another observation showing their apparent alienation from the CPH. "The leadership, I can't say that they are good, they are just average. They are always fighting each other. They are not patient, some seem to be selfish." In short, the Kano PMV association members tended to feel left out of CPH processes.

Ironically, the only area of Kano CPH membership increase reported in the official inventory was among the indigenous providers and PMVs. Thus, major health care players in the Kano design of the PH program feel left out, the PMVs who are largely non-indigenes, and the TBAs who are women. Fortunately, there

were roles designed for the PMVs in a number of projects undertaken by the CPH. “Our PMVs will be responsible for marketing of the condoms.” One PMV representative said, “The CPH is just about to execute a project on HIV/AIDS control. Our PMVs will be responsible for marketing of the condoms and offering these to CBD agents. One PMV described the benefits of their membership in the CPH as follows: “Our PMVs have been particularly singled out for some seminars on malaria control and NID. There is also an ongoing arrangement for the PMVs to buy directly from the genuine drug companies and at cheaper rates. Staff of PMV have become more confident. They (community members) see us as better drug sellers now. The local government and the state government are even now encouraging us to extend our sales to the rural areas. Our clients get better services and are more confident about our drugs. We now have increased patronage at about 30% increase. We have records of sales. (Badawa CPH). Another PMV from Gama-B CPH explained, “Many people come to my chemist because I give medicine as well as advice on what to do in cases of diarrhea, vomiting, etc., and all these I learnt from the CPH. Relations with the community are cordial. They are more receptive and understanding.”

The PMVs, who were supposed to form the third leg of the “triads” in Kano, saw some benefits to their businesses and themselves. A good example came from Gama-B on how the PMVs have benefited. “Because of our affiliation with the CPH, we have learnt about children's diseases that we don't know before now. I have benefited because I attended and participated in a lot of their workshops and seminars. We are very much aware of sickness that can kill or harm our children and have learnt how to cope with them, for example, with ORT. Many people come to my chemist because I give medicine as well as advice on what to do in cases of diarrhea, vomiting, etc, and all these I learnt from the CPH.” A PMV from Gwale also saw benefits. “My benefit is the ORT corner and if there is a call to attend a workshop. I attended three workshops. My advantage is the training and linkage with more people” A PMV from Badawa observed that membership of their PMV Association in the CPH has resulted in a membership increase within the association from 17 to 40. He thought that they have benefited by doing new activities such as mobilization for immunization, training on malaria control and helping conduct a community census. PMVs have also played a major health provider role for CPH members.

Local government facilities are not always reliable. This example from Gwale CPH illustrates the problem with LGA facilities and how PMVs fill the gap. “Our (LGA) health facility has no drugs. They send out members to PMVs belonging to the CPH for the purchase of drugs.” The involvement of PMVs in Kano has included a specific ORT component, and ORT was a component of local efforts in Kano to deal with a cholera outbreak. “I sell ORT and educate mothers on ORT corner.” (PMV Member, Gwale, Kano) CPH members have had a positive influence on PMVs. A community leader observed that, “People of the community are so interested in the activities of the CPH,” which he listed as immunization, environmental sanitation, clearing of drainage, female education, vocational training for women, and ensuring that the drugs in the PMV shops are genuine.

The experiment with involving PMVs and TBAs in Kano was noteworthy, but did not work as these alternative health care providers ultimately took part in the CPH as a PMV or TBA association, that is just another CBO and not a health care provider partner. PMVs and TBAs certainly have not performed the leadership roles seen among HCF staff in other CPHs. Some Kano CPHs have tried to assist the LGA by building and/or staffing LGA health posts and clinics, but ultimately these are creatures of the LGA and have not served the leadership function seen in Aba or Lagos.

Project 10

Name	Healthy Happy Home	Intervention Components	
Country	Ghana	Training/Capacity	4
Medicine Seller Focus	Partial	Enabling Environment	
Medicine Seller Numbers	Large	Demand Generation	4
Evaluation	Process	Quality Assurance	4

Document:

Healthy Happy Homes (He Ha Ho) Initiative Ghana, Quarterly Report, October-December 2003. Health Communication Project, Center for Communications Programs, The Johns Hopkins University, Baltimore.

Abstract:

Health Communication Project did an integrated CH program in Ghana called "He Ha Ho" (Healthy Happy Home). The He Ha Ho began with a home-based care initiative as part of RBM approximately two years ago and slowly has integrated other CH issues into He Ha Ho over time. The home-based care initiative under He Ha Ho included: a communication strategy to inform the public/caretakers on correct and complete use of antimalarials for children (through a mass media campaign, print materials and a popular radio magazine show); training of Chemical Sellers regarding proper treatment for children with malaria (support print materials, the training was conducted by the only pharmaceutical company who produces prepackaged drugs in Ghana – Kinapharma); and some advocacy activities to leaders and gatekeepers. There were one-off Chemical Shop Owners' orientations and continue with Shop-to-Shop orientations for Shop Attendants. Objectives: 1) To improve the capacity of chemical sellers in disseminating appropriate dosage information to mothers and other caregivers 2) Carry out further distribution of leaflets, reminder cards and posters through chemical sellers in the communities. Partners: 1) The campaign is a partnership between the RBM and IMCI units of the Ghana Health Service, JHU and Kinapharma Limited, who are the main facilitators of the field orientations for the chemical sellers. Key Activities and Accomplishments: Between April 1 and June 30, 2003, [CCP, HCP] accomplished the following – 1) Kinapharma completed orientation for 474 (84%) Chemical Shop owners for Volta region and 561 (79%) for Central region 2) 144 Chemical shop attendants have had orientation in the Volta region and 218 in Central region to date. Major Challenges: 1) Effective monitoring of the Chemical Sellers orientation process, especially the shop to shop orientations; 2) Mixed messages from the GHS pertaining to the efficacy of chloroquine, which discouraged Kinapharma due to the potential negative impact it could have on the campaign; and 3) unavailability of funds to carry out more Chemical Seller orientations in the remaining regions.

Project 11

Name	Improving Home-Based Management of Fever with PPDs in Abia State, Nigeria	Intervention Components	
Country	Nigeria	Training/Capacity	4
Medicine Seller Focus	Major	Enabling Environment	4
Medicine Seller Numbers	Large	Demand Generation	4
Evaluation	Monitoring	Quality Assurance	4

Document 1:

Improving Home-Based Management of Fever in Abia State, Nigeria. Report of the Baseline Survey. 6 September 2003. Bolaji Fapohunda, Beth Plowman, George Greer. BASICS II Project, Arlington, Va.

Abstract 1:

This report summarizes the results of a baseline study undertaken in July 2003 as part of the overall evaluation of the PMD intervention. The baseline study relied on two methods for data collection: a) simulated visits by mystery clients to assess PMD practices in regards to treatment and counseling and b) a detailed inventory of PMD outlets to document the types of antimalaria medicine sold, source of supplies, drug availability and quality; volume of sales and frequency of stock outs. Of 245 PMD outlets selected using random sampling techniques, the simulated visit interviews tool were successfully administered in 224, yielding a response rate of 91%. The inventory was administered in 194 outlets, yielding a response rate of 76%. For one hundred and eighty-six (186) PMVs, information is available from both the simulated visits and the inventory. A second round of data collection is planned after several months of implementation. Select findings from the baseline study are described below.

Based on the simulated visits, it was found that PMDs frequently ask about the age of the child (92 %) and duration of illness (63 %). In 72 % of the simulated visits, the PMD explained how to use the medicine given. Eight percent (8%) of PMDs visited either recommended or gave the correct dose of the antimalaria. One in five PMDs (20 %) explained the signs that would require taking the child to a health facility; one in three PMDs (32 %) asked whether the client understood the advise provided and only one in twenty (5 %) advised that the child sleep under an insecticide-treated bed net. Based on PMD inventory, it was found that Antimalaria drugs most commonly sold in the PMDs and available on the day of the inventory included chloroquine tablets, Nivaquin, Metakelfin, Amalar and Maloxine. Over half (52 %) of PMDs interviewed cited a mosquito net (of any type) as a means of preventing malaria in children. Far fewer PMDs (21 %) were able to cite a treated mosquito net as a means of preventing malaria. Most of the PMD staff interviewed had some secondary education (57 %).

Document 2:

Community Based Training of Informal Drug Sellers to Improve Malaria Case Management in Children Under Five Years in Nigeria. George Greer, BASICS II Project, presented at the SEAM Conference, Dar es Salaam, Tanzania, December 2003.

Abstract 2:

The project investigated the Feasibility and effectiveness of delegating major responsibilities to local community health coalition for a community-based training for Patent Medicine Vendors (PMVs) (attendants/owners of informal drugs shops) to improve case management of malaria in children under 5. The partners coordinated the training with the launch of pre-packaged CQ and SP in Abia State, Nigeria. The

Objectives of the project were as follows: 1) Improve the ability of PMVs to recognize uncomplicated and severe malaria, 2) Increase the referral by PMVs of severe cases. 3) Increase the sale of correct and full doses of anti-malarial (chloroquine and SP). 4) Decrease the sale of low quality and/or expired anti-malarial, and 5) Improve interaction and information passed to clients about malaria treatment and prevention. The Intervention approach was designed to maximize community ownership of intervention, and Increase sense of responsibility of PMVs to the community -better services. This was based on the expectation that Community involvement will improve sustainability. In combination with supportive policies this approach may increase feasibility of taking the intervention to scale. The intervention was carried out in 2 LGAs in Abia State -Aba North and South with a Total Population > 700,000. Implementation was based in Catchment Area Planning and Action (CAPA) consisting of CBOs in the neighborhood of LGA health facilities. The CAPA Committees directed an inventory in 15 catchment areas in 2 LGAs and registered 1031 PMVs. 21 PMVs were trained as master trainers. Approximately 50 Community-based cascade trainings took place initially in August and September 2003 with mop-up in November. 832 (82%) of 1031 PMVs attended cascade training. Suspicion about training was high initially. As an incentive IEC materials/certificate were provided. All PMVs accepted pledge to provide better service and quality drugs to the community. Implementation costs were documented. Direct training costs were ~ \$10 per PMV Not including partner staff time. IEC materials given to the PMV to take back and use as job aids and customer handbills cost another ~ \$7 per PMV. These costs can be cut considerably. Pre-packaged CQ and SP products were officially launched on July 30, 2003. August PPD sales were 8,250unit; Sept. sales >27,000. CAPA will periodically follow up with PMVs to reinforce pledge. BASICS will conduct a follow-up survey in January 2004. In summary, a large number of PMVs could be trained quickly and relatively cheaply (and we will soon measure how effectively). Rapid scale up is possible. The approach can accommodate additional modules for management of diarrhea, perhaps ARI. Sustainability/supervision is a challenge.

Document 3:

Simulated Visits – Mystery Client Survey. BASICS II Nigeria PMD Evaluation Survey 2004 (preliminary results). BASICS II, Arlington, Va.

Abstract 3:

A three-prong intervention was developed to promote timely and appropriate home management of malaria or febrile illness in Aba North and Aba South Local Governments of Abia State Nigeria through the use of prepackaged antimalarial drugs in age-specific color-coded packets. One component was training of patent medicine dealers (PMDs), the second consisted of mass media promotional efforts, while the third involved work with community based organizations that not only helped identify PMDs in their neighborhoods but also through community health promoters (CHPs) encouraged caregivers to buy PPDs from the PMDs. A baseline survey in July 2003, just prior to PMD training was done using simulated or mystery clients trained to ask the PMD for help in treating either a case of simple malaria in a 2-year old child (N=112) or complicated malaria (N=110) to a sample of PMDs in the study communities. Fourteen PMV behaviors were noted ranging from seeking information about the child and its illness to selling appropriate drugs and giving advice. In January 2004 follow-up mystery client visits were again conducted, 100 for simple malaria and 111 for complicated malaria. At baseline 28% cases of simple malaria and 19% of complicated were given some form of antimalarial drug. At follow-up, these proportions rose to 96% and 80% respectively. PMDs sold only loose drugs and syrup at baseline, and at follow-up they sold PPDs in addition to the existing formulations. For simple malaria 60% of the mystery clients received PPDs and 36% were sold other formulations. Likewise, for complicated malaria 49% received PPDs and 31% other formulations. The proportion of PMVs who asked the customer if she understood the information given rose from 35% to 54% for those presenting simple malaria but only from 29% to 33% in the case of complicated malaria.

Document 4:

Consumer Response and Satisfaction Survey - Promotion of Prepackaged Drugs. Aba, Abia State, Nigeria. Society for Family Health, February-March 2004.

Abstract 4:

At the end of July, 2003, a consortium of three USAID partners launched a project to promote the correct use of prepackaged antimalarial drugs (PPDs) for preschool aged children in Aba North and South Local Government Areas of Abia State Nigeria. BASICS II had established 15 Catchment Area Planning and Action (CAPA) committees comprising local community based organizations (CBOs) anchored around 15 local government primary health care facilities. The CAPA Committees selected volunteer community health promoters (CHPs) who were trained to provide home-based counseling on the need for prompt treatment of childhood malaria with appropriate antimalarial drugs. In addition CAPA members conducted an inventory of patent medicine dealers/vendors (PMD/Vs) in each area where appropriate antimalarial drugs could be obtained. BASICS was joined by the Health Communication Partnership (HCP) to develop educational and training materials for the CHPs and PMVs. Concurrently, the Society for Family Health (SFH) had been working with Nigerian pharmaceutical manufacturers to develop strategies for marketing recently approved prepackaged antimalarials in age-specific, color-coded blister packs. SFH had previously established a strong national wholesale distribution network for social marketing of contraceptives, and used the same process to provide supplies of PPDs for the trained PMVs. The social marketing component was launched with products from SWIPHA, although all companies carry the same color codes and RBM logos, which are the basis for promotional activities. In addition, SFH developed a radio and billboard campaign for the PPDs and hired a product detailer to work with PMVs post-training. Approximately 6 months after launching, BASICS was responsible for conducting a community baseline and follow-up survey as well as pre- and post-training mystery/simulated client visits to the PMVs. SFH undertook a consumer response/satisfaction among actual product users in February-March 2003.

A total of 570 respondents were recruited and interviewed from all 15 Catchment Areas in the two Local Governments. Respondents consisted of 493 (86.5%) mothers, 60 (10.5%) fathers and 17 (3.0%) other relatives. The most common place where people heard about the PPDs was from medicine sellers (33.4%). Other common sources included health workers (24.3%), the electronic mass media (18.4%) and friends or relatives (13.5%). Most children (81.1%) took Robaquine (chloroquine – CQ), while 108 (18.9%) took Fansidar (sulphadoxine-pyramethamine – SP). The median amount paid for Robaquine was N50 (\$0.36) and for Fansidar, N80 (\$0.57). Respondents were asked to rate the effectiveness of the PPD treatment: 86.8% said it was very effective, 6.1% said it was somewhat effective; 2.8% were unsure; and 4.2% rated it as ineffective. Consumers were also asked what they liked and disliked about the PPDs and their packaging. Most respondents had something positive to say about the drug (94.9%) and the packaging (93.8%). Only 19.5% had a complaint about either the drug or the packaging.

Age coding for the PPDs used yellow for the youngest group and blue for the next oldest. Due to limitations of drug formulation the age limits were different for CQ and SP. Robaquine yellow is geared for children under one year, and blue for 1-6 years of age. Fansidar yellow was set for children aged 2-24 months, with blue aimed at those 2-6 years. PMVs were trained to ask the child's age to ensure that the safe age-specific product was purchased. Overall, 454 (83.9%) received the age-appropriate packet. Eighteen (3.2%) received a packet for a younger age group, and 94 (16.6%) were given a packet for older children. Age was not known for 4 children. Among those who received Robaquine, 437 (94.6%) had taken all tablets by the time of the interview. All 108 children who received Fansidar had been given the Fansidar tablet contained in the packet, but a few had not taken all the paracetamol, which is co-packaged with Fansidar. Also 95.8% of respondents reported that they had completed their treatment within three days, the maximum time if one used Robaquine.

The survey demonstrated that consumers are generally satisfied with the product and the packaging, and for the most part ensure that their children take the full dose. Continuing education is needed for the PMVs to ensure that they obtain accurate age information about the child and sell the age-specific packet. Underdosing is just as serious a concern as overdosing in Nigeria where parasite resistance is rapidly developing for both drugs.

Project 12

Name	Ssembabule Child Survival Project in Uganda	Intervention Components	
Country	Uganda	Training/Capacity	4
Medicine Seller Focus	Partial	Enabling Environment	
Medicine Seller Numbers	Medium	Demand Generation	
Evaluation	Outcome	Quality Assurance	4

Document:

Minnesota International Health Volunteers. Partnering With Traditional Healers and Drug Sellers in Uganda. Integrated Management of Childhood Illness (IMCI) Conference. Presented by Jolene Mullins, Uganda Project Director. January 16-19, 2001, Baltimore. USAID Cooperative Agreement Number FAO 0500-A-00-6025-00.

Abstract:

MIHV learned that in remote and highly rural areas where clinics are difficult to access, the involvement of highly respected community level practitioners is essential, not just to provide life-saving services, but also to give credibility to project interventions and to mobilize communities to improve health. MIHV decided to expand its work with community providers (1) to focus on prevention and treatment of childhood malaria and diarrheal disease and (2) to include additional cadres. Since 1997, MIHV has used private funds (primarily from the Conservation, Food, and Health Foundation, but also from the Child Health Foundation for initial research), to train TBAs, traditional healers (THs), and drug vendors (DVs) to (1) recognize symptoms of major childhood illnesses, (2) provide improved services to ill children, (3) refer seriously ill children, and (4) mobilize communities to protect and improve child health. Through these activities, community providers, working in cooperation with the District Health Team (DHT) and clinic staff, have extended the reach of public sector health services and significantly improved caretaker knowledge and clinic usage.

In Ssembabule, approximately 300 DVs sell drugs. Although few DVs are formally trained and few of their shops are registered or regulated, DVs enjoy enormous respect: they are often viewed as having the expertise of a doctor. In an environment where access to health services is poor and clinics frequently experience drug shortages, caretakers go to DVs, not seeing any reason why they should not eliminate the middleman, i.e., the trained health provider. The project then held a meeting of identified THs and DVs at the subcounty level to introduce them to MIHV's child survival activities and to gauge their interest in properly diagnosing childhood illness, providing appropriate care, referring seriously ill children, conducting outreach to other providers, and mobilizing communities to improve health. DV Training. Fifty DVs of the district's approximately 300 DVs were trained in the initial three-day training, which focused on proper care and referral of malaria. A key issue in training and monitoring was provision of partial courses of chloroquine. DVs wanted to sell partial courses to clients who could not afford a complete course of treatment, sometimes because they preferred any sale to no sale, sometimes because they believed partial treatment must be better than no treatment. As a result of intensive training and follow-up, DVs offered a commitment to refer clients who could not afford a full course of chloroquine treatment, though of course this commitment was not always met. The project provided DVs with calendars and posters that displaying age-appropriate dosage information. DVs were very committed to attending training and expanding their service provision role in their communities. Unlike other community workers, these cadres were not paid a stipend, and lost money whenever they closed their shop to attend a training. Nonetheless, they participated in the initial training and in subsequent one- to two-day trainings, which took place every three or four months.

DV Referral and Monitoring. As with THs, the district health team was involved in developing and administering DV training as well as in quarterly monitoring and supervision. Again, because many DVs had been community immunizers, they already had a working relationship with health units. DVs kept records of how much chloroquine they dispensed and to whom (who the client was, how old the client was, the course of treatment sold, any follow up or referrals made), which were reviewed during these monitoring visits. It was very important in training and follow-up to help DVs recognize their limitations so they would be more likely to refer serious cases. Because of the status granted them by communities and the frequent absence of trained health care providers in the area, even the least qualified DV could sometimes overestimate his or her own knowledge and expertise. As part of training, the project stressed that it is acceptable for professionals to refer cases, to advise clients when they can be better served by a trained health care provider. The project also stressed that it is not good for business to give clients inaccurate advice. While DVs already knew this, it was important to discuss this issue openly and to reinforce professional norms. Tools developed included supervision tools, an instrument for referrals, and a record-keeping tool for DVs.

As part of the initial training, participating DVs of their own initiative established a chartered DV Association to provide support and supervision to district DVs. Using government standards, the Association began working with the District Health Team to register and govern the activities of DVs in the district. Representatives go out with project or health unit staff to conduct DV monitoring visits. The Association also holds meetings for its 100 members and makes recommendations to the District Health Team regarding additional training needs. By working closely with district and clinic staff and communicating professional norms to its members, the Association plays a critical sustainability and quality-assurance role. At the beginning of the project, 47% sought care for malaria at a drug shop, 32% at a health unit, and 11% from THs. Although the recommended chloroquine dose was revised during the project period, 22.7% of mothers knew the correct children's dosage, a large increase from the 1996 level of 8%. Ironically by the final survey, only 4% sought care at a drug shop, and 71% sought care at a health unit.

A different effect was seen in terms of condom purchases. Shops replaced family planning clinics as the primary source of condoms for women who used them as an HIV-prevention strategy (50% and 26.7%, respectively, where multiple responses were possible but rare). The use of clinics as a source fell by half, while the use of shops more than tripled. This shift could be due to condom stockouts at MOH clinics, increased availability of condoms through project-trained and -supplied CBD agents and DVs, and reluctance on the part of men to buy condoms at a public clinic.

Project 13

Name	Utilizing the Potential of Private Health Practitioners in Child Survival	Intervention Components	
Country	Uganda	Training/Capacity	4
Medicine Seller Focus	Central	Enabling Environment	4
Medicine Seller Numbers	Small	Demand Generation	
Evaluation	Outcome	Quality Assurance	4

Document:

Utilizing the Potential of Private Health Practitioners in Child Survival: Evaluation Simulated Visit Report. Luwero District, December 2003. SARA Project, BASICS II, and Uganda Ministry of Health.

Abstract:

Utilizing the potential of private practitioners in child survival project was initiated by the Ministry of Health, IMCI unit and Malaria Control Program, with initial support from SARA project funded by USAID Africa Bureau and latter by BASICS II. In its evaluation phase, the project aims at determining whether negotiation sessions with Private Health Practitioners target specific practices leads to improvement of effectiveness of Private Practitioners' (PP) case management of childhood diarrhea, Fever (malaria) and Acute Respiratory Infection. The evaluation phase builds on the earlier phases of the project, during which the following were conducted/developed: 1) A situation analysis on the role of formal and informal/private practitioners in child health, 2) Inventory of private health practitioners in Luwero, Ntungamo and Rakai districts, 3) Specific district level planning meetings in Luwero, Ntungamo and Rakai districts, 4) A national strategy to involve private health practitioners in child survival, 5) Baseline simulated visits to PPs in Kamira, Makulubita, Kinyogoga and Ngoma sub-counties in Luwero district, 6) Guidelines for conducting negotiations sessions with private health practitioners to establish norms, 7) Negotiation sessions with PPs in Kamira, Makulubita, Kinyogoga and Ngoma sub-counties, 8) Support supervision visits to private health practitioners in Kamira, Makulubita, Kinyogoga and Ngoma sub-counties.

Evaluation was conducted using a simulated visit tool, which was a structured questionnaire that was designed to capture the practitioners' practices with regard to their assessment of the different illness conditions, advice and treatment giving. It was designed to check whether the providers ask for age of the sick child, duration of illness and signs and symptoms of the different childhood illnesses. In addition, it gathered information on previous medication, feeding during illness, advice on referral, type of medicine given, correct dosage and explanation on how to give medicine.

For simple malaria, a comparison of the baseline and evaluation simulated visits results showed significant differences in the percentages of the private practitioners who gave the correct medicine and dosage, and explained to the client how to give the medicine. During the baseline, only 2% of the private practitioners gave the correct medicine, none gave the correct dosage and 8% explained to the client how to give the medicine. According to the evaluation results, 73% gave the correct medicine, 50% gave the correct dosage and 49% explained to the client how to give the drug. There was a marked difference in the proportion of practitioners who advised on signs to watch for which require immediate care from none during the baseline to 22% during the evaluation. In addition, there were more practitioners (38%) who asked to see the sick child during the evaluation compared to 28% during the baseline. There were no significant changes in the proportion of practitioners who asked about the age of the child, if the child had convulsions, about the color of urine, if the child had cough/cold and those who advised to sleep under ITN.

Project 14

Name	Vendor-to-Vendor Program	Intervention Components	
Country	Kenya	Training/Capacity	4
Medicine Seller Focus	Major	Enabling Environment	
Medicine Seller Numbers	Large	Demand Generation	4
Evaluation	Outcome	Quality Assurance	4

Document 1:

How Rural Vendors Reduced Harmful Anti-Malarial Practices in Kenya's Private Sector: Results of a Mystery Shopper Evaluation. Tavrow P and Shabahang J. USAID Operations Research Presentation. January 24, 2001, Ronald Reagan Building.

Abstract 1:

Today, about two-thirds of people living in malaria endemic areas buy anti-malarial drugs from private drug outlets, particularly from small shops and outlets. Often, these private outlets stock unapproved drugs. Consumers frequently receive incorrect dosages and erroneous information about malaria treatment. As part of the Africa Integrated Malaria Initiative, QAP assisted the Bungoma District Health Management team (DHMT) in Kenya to produce an innovative, low-cost approach to increase private outlets' compliance with malaria guidelines. This approach consisted of training mobile vendors and wholesale drug sellers to be educators and advocates of the new national guidelines. As part of this "vendor-to-vendor" program, vendors distributed job aids designed for the private sector. Over 500 drug outlets were reached in the first six months of the program. In October 2000, QAP and DHMT evaluated the program using mystery shoppers. Results indicate that the program significantly improved knowledge and practices of private outlets.

Document 2:

Vendor-to-Vendor Education to improve malaria treatment by drug outlets in Kenya. Tavrow, P., J. Shabahang, and S. Makama. 2002. *Operations Research Results*. 2(3). Bethesda, MD: Published for the U.S. Agency for International Development (USAID) by the Quality Assurance Project

Abstract 2:

Private drug outlets have grown increasingly important as the main source of malaria treatment for residents of malaria endemic areas. Unfortunately, the quality of information and the quantity and quality of drugs provided is often deficient. The World Health Organization has included the private sector in its Roll Back Malaria strategy, but has noted that it is notoriously difficult to change private sector practices without burdening the governments of developing countries. In the Bungoma district of Kenya, the Quality Assurance Project (USA) teamed up with the Bungoma District Health Management Team and African Medical and Research Foundation to test an innovative, low-cost approach for improving the prescribing practices of private drug outlets. The intervention, called Vendor-to-Vendor Education, involved training and equipping wholesale counter attendants and mobile vendors with customized job aids for distribution to small rural and peri-urban retailers. The job aids consisted of: (a) a shopkeeper poster that described the new malaria guidelines, provided a treatment schedule, and gave advice on the appropriate actions to take in various scenarios; and (b) a client poster that depicted the five approved malaria drugs and advised clients to ask for them. The training of wholesalers began in April 2000. Six months after the training started, the authors evaluated the program using mystery shoppers, who posed as caretakers of sick children needing medication. The evaluation revealed that outlets receiving job aids had significantly better malaria knowledge and prescribing practices than those that did not. It was estimated that about 500 drug outlets (of 1500 in Bungoma district and 2400 in neighboring districts) were reached by the intervention and that about 82,000 additional malaria clients received proper treatment as a result of the intervention. Since the intervention cost about \$8300 to conduct (excluding the cost of the mystery shopper evaluation), the cost is \$0.10 per beneficiary. For greater impact, it would be necessary to strengthen consumer demand for the correct drugs, to develop ways to continue to motivate the wholesale counter attendants, and to achieve proper packaging and quality enforcement at the national level.

Document 3:

Improving Malaria Treatment in Kenya by Cynthia Young and Lani Marquez. <http://www.urchs.com/news/archiveall.html>. Accessed on 22 January 2004.

Abstract 3:

To reduce harmful self-treatment practices, USAID, through its Africa Integrated Malaria Initiative, asked URC's Quality Assurance (QA) Project to help the Ministry of Health of Kenya better inform mothers and private drug sellers about the Ministry's new malaria treatment guidelines. Working with health professionals from the Bungoma District Health Management Team (DHMT), QA Project staff developed an innovative "vendor-to-vendor" program using wholesale drug vendors to orient private drug sellers on the new

guidelines. In the first phase of the program, wholesale vendors distributed job aid posters in the local language explaining the correct malaria drugs and dosages to more than 500 private drug outlets in the district and surrounding areas. A second phase of the program reached an additional 300-400 outlets. To complement these improvements in the supply of effective malaria treatment through "informed retailers," the team also recognized the need for "informed consumers" who would demand the correct drugs and spur local retailers to stock them. "With so many unapproved drugs on the market, parents need clear, simple, and credible information about which drugs they should buy for their sick children," explains Waverly Rennie, Senior Quality Assurance Advisor for the QA Project. In the spring of 2002, QA Project and DHMT staff introduced "jirani-kwa-jirani" (neighbor-to-neighbor) activities to spread the word about correct malaria treatment throughout the district, including community song contests and a new, comic-book style brochure for parents that complemented an existing MOH malaria brochure.

A pyramid training approach was used to distribute the two brochures in communities. Thirty Ministry of Health (MOH) field workers were trained to explain and give stacks of the brochures to their top five contacts in each of 150 villages. These top contacts, in turn, were asked to each explain and distribute the brochures to five more villagers, and so forth. The QA Project and the Bungoma DHMT evaluated the vendor-to-vendor and neighbor-to-neighbor activities in May 2002. The evaluation used teams of mystery shoppers who visited drug sellers, posing as customers with children sick with malaria. DHMT supervisors also visited shopkeepers to verify stocks of appropriate drugs and to assess vendors' knowledge of correct treatment practices. In addition, a population-based survey was conducted to measure the impact of the neighbor-to-neighbor brochures and songs. Retailer and consumer knowledge and practices were assessed in Bungoma District and a comparison district. Results showed dramatic improvement in knowledge and compliance with malaria guidelines among drug outlets that had received the posters from the wholesale vendors. Mystery shoppers were far more likely to receive appropriate drugs from the outlets reached by the program: 40 percent of the shoppers visiting outlets with posters were sold the approved type of drugs, compared to only 14 percent of shoppers visiting the control outlets. The posters also had a significant effect on outlets' drug stocking practices: 84 percent of the intervention outlets had the correct drugs in stock, compared to just 44 percent of control outlets.

The household survey confirmed the impact of the community-based interventions. Of the 661 randomly selected households surveyed, over half of the respondents had purchased malaria treatment in the past two weeks. Of these, those who had been exposed to the neighbor-to-neighbor intervention or heard the malaria treatment songs were much more likely to have purchased and administered the correct malaria treatment in the last two weeks than those not exposed (57 percent correct treatment in the exposed group compared to 35 percent correct treatment among those not exposed to the interventions). The exposed households also were much more likely to know drugs recommended by the MOH. The QA Project and the Kenyan Ministry of Health have produced a comprehensive manual for how to introduce the vendor-to-vendor intervention in private retail outlets. The manual, entitled "Vendor to Vendor Education to Improve Malaria Treatment by the Private Sector: A 'How-To' Manual for District Managers" may be downloaded from the QA Project website at www.qaproject.org (go to "New Products" in the "What's New" section). For more information on URC's work to improve malaria treatment in Kenya, contact Dr. Paula Tavrow or Ms. Waverly Rennie.

Document 4:

Neighbor-to-neighbor education to improve malaria treatment in households in Bungoma District, Kenya
Final Evaluation Report. Paula Tavrow and Waverly Rennie. Quality Assurance Project, Center for Human Services, Bethesda, Maryland, USA. September 29, 2003.

Abstract 4:

This study's main objective was to determine the impact of a low-cost outreach "neighbor-to-neighbor" (jirani kwa jirani, or JKJ) education program on caretaker purchase and consumption of anti-malarial drugs in Bungoma District, Kenya. The Bungoma District Health Management Team (DHMT) carried out this intervention with technical support from the Quality Assurance Project (QAP) and facilitation from AMREF. It was intended to complement another intervention to improve anti-malarial prescribing practices of drug

sellers in the same district (vendor-to-vendor). Forty MOH extension health workers (EHWs) received a one-day orientation from the DHMT on the JKJ approach and the two illustrated brochures explaining proper malaria treatment and recommended drugs. About thirty EHWs then led a pyramid distribution of the brochures in 112 villages. They also organized 30 contests in which villages presented songs, dramas or poems they had created to promote use of effective anti-malarial drugs. The DHMT and Public Health Officers, who directly supervise the EHWs, monitored the intervention during the six to eight week implementation period.

Key Findings: About six weeks after launching the JKJ intervention, 53% of the households in the intervention area had been reached either by a brochure or the song contest. Most of the spread was through community members sharing brochures or what they had heard at the song contest. In general, respondents with higher education had better knowledge and practices than those with lower education. They were also more likely to purchase antimalarials for their children. Respondents in the intervention area were more likely to know the MOH-recommended anti-malarial drugs and to report intentions to use them. This difference was highly significant among respondents with lower education levels. Lower education respondents in the intervention area were significantly more likely to have purchased the first line anti-malarial drug, SP, than were those in the comparison area, (49% vs. 26%) and less likely to have treated malaria with antipyretics alone (6% vs. 28%). Respondents in the intervention area were significantly more likely to have taken the correct dose of SP controlling for education and age of patient treated, people living in the intervention area were twice as likely (OR 2.2, confidence interval 1.3 - 3.6, sig .003) to have purchased and consumed the correct dose of SP as those in the comparison area. Local costs to replicate the intervention as an add-on to existing DHMT or NGO activities were estimated at about 59 Ksh or \$.83 per household in the intervention area. Preliminary results concerning the strategy's impact, feasibility and low cost have convinced other donors such as DFID and Rotary to replicate it elsewhere in Kenya.

Document 5:

Vendor-to-vendor education to improve malaria treatment by private drug outlets in Bungoma District, Kenya. Paula Tavrow, Jennifer Shabahang and Sammy Makama. *Malaria Journal* 2003; 2(10).

Abstract 5:

BACKGROUND: Private outlets are the main suppliers of uncomplicated malaria treatment in Africa. However, they are so numerous that they are difficult for governments to influence and regulate. This study's objective was to evaluate a low-cost outreach education (vendor-to-vendor) programme to improve the private sector's compliance with malaria guidelines in Bungoma district, Kenya. The cornerstone of the programme was the district's training of 73 wholesalers who were equipped with customized job aids for distribution to small retailers.

METHODS: Six months after training the wholesalers, the programme was evaluated using mystery shoppers. The shoppers posed as caretakers of sick children needing medication at 252 drug outlets. Afterwards, supervisors assessed the outlets' knowledge, drug stocks, and prices.

RESULTS: The intervention seems to have had a significant impact on stocking patterns, malaria knowledge and prescribing practices of shops/kiosks, but not consistently on other types of outlets. About 32% of shops receiving job aids prescribed to mystery shoppers the approved first-line drug, sulfadoxine-pyremethamine, as compared to only 3% of the control shops. In the first six months, it is estimated that 500 outlets were reached, at a cost of about \$8000.

CONCLUSIONS: Changing private sector knowledge and practices is widely acknowledged to be slow and difficult. The vendor-to-vendor programme seems a feasible district-level strategy for achieving significant improvements in knowledge and practices of shops/kiosks. However, alternate strategies will be needed to influence pharmacies and clinics. Overall, the impact will be only moderate unless national policies and programmes are also introduced.

Project 15

Name	Training Retail Sellers on Correct Use of OTC Antimalaria Drugs	Intervention Components	
Country	Kenya	Training/Capacity	4
Medicine Seller Focus	Central	Enabling Environment	
Medicine Seller Numbers	Medium	Demand Generation	
Evaluation	Monitor	Quality Assurance	4

Document:

Lessons Learnt in Training Retail Sellers on Correct Use of OTC Antimalaria Drugs in Kenya. John Muturi – Project Coordinator, Merlin, Kisii, Kenya. see also – Development of a Monitoring System: Malaria Control and Health Service Capacity Building Project, Kisii & Gucha Districts, presented at Fresh Air: Malaria Technical Update, Workshop Held at AMREF International Training Center - Nairobi, Kenya, November 26 – December 1, 2001; and Kenya: Malaria Prevention, HIV/AIDS control and the regional base, <http://www.merlin.org.uk>.

Abstract:

Retail sellers refers to untrained commercial drug sellers. These are given different names in Kenya such as shopkeepers, drug vendors, kiosk owners and businesspersons. A common characteristic is that, they are untrained to sell drugs and therefore, do it for commercial gain. They differ from trained pharmacists who run licensed pharmacies. OTC drugs in Kenya include antimalarials (fansidar, orodar, metakelfin, falcidin, viparum, maladrin), antipyretics (panadol, hedex, aspirin, mifupen, maramoja), and anti-coughs such as (cofta, goodmorning).

Rationale: The decision to train retail sellers is based on the fact that: Most people in rural communities consult retail sellers when they have fever. This is because it is retail sellers who are closest to them. While retail sellers are allowed to sell OTC drugs, hardly any of them are trained on how to use these drugs correctly. Consequently they sell the drugs that customers ask for and the amount that the customer requires. In most cases, treatment given by retail sellers is incorrect. It is incorrect in many aspects e.g. choice of drug, dosage, regime or combination of drugs. Retail sellers are sustainable structures. They have existed over many years and do not require external funding for them to survive. All they require is to be supported to improve their current practices. Over the years we have learnt the need for careful selection process to ensure that those who are trained perform as expected.

Training Processes: It is important to adhere to the following recruitment guidelines: Select retail sellers who are far away from formal health facilities. People who are near health facilities will prefer to use the health facilities as opposed to retail sellers. It is important to establish that retail sellers are willing to be trained on correct use of drugs. A needs assessment to determine those who are willing to be trained should be done. To avoid including retail sellers who are not stable, it is important to ensure that those invited for the training have been operational for at least six months. From experience some newly established sellers end up closing the business. Only those retail sellers who are selling anti-malarial drugs should be included. From experience, some retail sellers failed to stock anti-malarial drugs after training. Those not selling antimalarials should only be included if there is understanding that they will begin to stock these drugs. It is important to ensure that two people are trained for each retail outlet. This is because there are two people who assist each other in most retail outlets. Training both ensures continuity of expected services. Age, education and gender are not influential factors in selection of retail outlets. What needs to be done is to ensure that the training is sensitive to the needs of different age groups, educational differences and gender

A training needs assessment was conducted to determine the training content. The retail sellers have been trained on the following topics: 1) What is malaria and who is at most risk, 2) Recognizing simple and severe malaria, 3) Malaria diagnosis, 4) Treatment of simple malaria including drug combination, side effect of different drugs, treatment failure, 5) Conditions that necessitate referral, 6) Malaria prevention, 7) Communication skills, 8) Record keeping, 9) Buying and stocking anti-malarial drugs, and 10) Co-ordination of malaria control activities.

The training needs assessment clarified how the retail sellers wished to be trained, duration of training, venue, and methods. Various methods have proven effective in training retail sellers including pile sorting (classification of drugs), role plays (malaria treatment, communication skills), group discussion (causes of malaria), mimes (drug resistance)¹. In some cases, analysis of video clips has proved to be a suitable.

Supportive supervision was aimed at ensuring that retail outlets are provided guidance at a personal level in their working environment. It involved the training team visits to retail sellers in their work place (retail shops/kiosks). During the visits, role-plays were done with some people posing as customers. Other issues that are addressed include arrangement of drugs, labeling, display of dosage charts and communication skills. In addition to training, retail sellers are supported with IEC materials especially on dosage for age, danger signs and general information on malaria diagnosis, treatment and referral. The IEC materials may be in the form of calendars, leaflets and handouts.

Impact of Training Retail Sellers: There is ample evidence that training retail sellers is an effective way of ensuring correct use of antimalarial drugs. The number of shopkeepers who were stocking Fansidar, Metakelfin, Ordar, Falcidin increased from 33%, 2%, 0% and 2% respectively to 58%, 17%, 31% and 24% three months after the training. Those selling Malaratab, a prescription drug decreased, from 82% to 6% during the same period. The number of shopkeepers who were aware of correct antimalarial dosage for age for age groups under 1 year, 1-4 years, 5-8 years, 9-14 years and above 15 years increased from 0%, 0%, 2%, 0% and 38% respectively to 85%, 59%, 53%, 62% and 59% respectively over a period of three months. The number of shopkeepers who were aware that fever is a key sign for malaria before the training was 81.8% compared with compared with 94.1% who were aware three months after the training.

Conclusion: In conclusion, training of retail sellers on correct use of OTC drugs is an effective method of ensuring that they provide correct information to their customers. Studies done have proven that the method works and the cost is minimal. The biggest challenge is to scale up this form of training at the national level. Full involvement of agencies manufacturing the OTC drugs is essential to ensure success of this process.

Section 2: Other Relevant Informal Private Sector/Non-Government Interventions

Projects outlined in this section involve studies outside the scope of this document but that offer some lessons or insight that could be adapted to enhancing the performance of Medicine Sellers in child health and malaria control. Many of these studies may still involve medicine sellers but took place outside Africa (e.g. Peru, Vietnam). They also may focus on other health issues (STDs, family planning), or utilize other non-formal providers such as village health workers and market women. These projects are presented under four main headings, 1) those utilizing villages based volunteer workers 2) those related to reproductive health, 3) those related to non-malaria child health issues in developing countries, and 4) others focused on changing antibiotic medicine selling behavior.

2.1 Village Health Workers

The following VHW studies can be classified as informal and private in the sense that they are conducted outside the formal health system by research teams. Some have been sustained by local NGO efforts. An interesting lesson from these studies is that well trained and supported VHWs can actually take business away from Medicine Sellers. VHW interventions include for the most part some element of community involvement and oversight. This component was found in only a few of the 14 VHW studies, and is lesson that could be adapted for future Medicine Seller interventions.

Project Name:	Home Management of Fever with Prepackaged Drugs
Country:	Ghana
Intervention:	Community based agents with pre-packaged drugs

Document:

Early appropriate home management of fevers in children aged 6 months to 6 years in Ghana. Principal Investigator: Dr E.N.L. Browne, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana. TDR Field Report Series #54, Project No. 980285, May 2002.

Abstract:

Trained volunteers can use prepackaged drugs to effectively treat African children with fever within 24 hours of onset of illness. Community-based agents can provide effective near-home treatment. Prepacks were widely acceptable and greatly improved health-seeking behavior of mothers and caregivers. Over 90% of those using antimalarial pre-packs complied with treatment. Home visits and follow-up, rather than availability, led to effective use and compliance. A good IEC programme resulted in improved care. The findings are causing national health services to review their care delivery systems and products.

Project Name:	Home Management of Fever with Prepackaged Drugs
Country:	Burkina Faso
Intervention:	Village volunteers with pre-packaged drugs

Documents:

(1) Impact of early and appropriate treatment of childhood malaria/fevers on severe malaria in Burkina Faso
Principal Investigator: Dr S.B. Sirima, Centre National de Recherche et de Formation sur le Paludisme, Ouagadougou, Burkina Faso, Sponsored by the UNCP/World Bank/WHO TDR Program, Geneva, Project No. 971060, TDR Field Report Series #29, January 2001. (2) Sirima SB, Konate A, Tiono AB,

Convelbo N, Cousens S, and Pagnoni F. Early treatment of childhood fevers with pre-packaged antimalarial drugs in the home reduces severe malaria morbidity in Burkina Faso. *Tropical Medicine and International Health*, 2003, 8(2), 133-139.

Abstract:

Appropriate treatment of children in the early stages of malaria can prevent progression to severe disease and save lives. A home management system in Burkina Faso involved the pre-packaging and selling of antimalarial drugs via trained village volunteers. In the four age groups tested, progression to severe malaria varied between 3-7.1% in children who received packaged drugs compared with 8.1-18.2% in the control group. In both groups, progression rates were highest in children aged 7-11 months, and lowest in children aged 4-6 years. Overall, reduction of progression in users of pre-packaged drugs was 53.6%.

In Burkina Faso (Sirima *et al.*, 2003) where the study involved a larger population of about 450 000 people, of whom 67 500 were children under five, the study provided evidence that prepackaged antimalarials can reduce progression to severe disease. In this trial, only prepackaged antimalarials were used (not cotrimoxazole, which is for acute respiratory infection). The study involved teaching mothers how to recognize presumptive malaria episodes while ensuring availability of low-cost antimalarial drugs in unit-dose packages at village level. Local health staff were retrained, and sensitization meetings held in each of 375 villages.

Prepackaged drugs were made available through village volunteers, who sold the packs at a price agreed with the local health management team and calculated to cover the purchase cost of the drugs and a 10% incentive for the volunteer. A four-fold increase in percentage of children treated correctly and a 53% reduction in the proportion of sick children that progressed to severe malaria (see box 1) were achieved at low cost.

Project Name:	Saradidi Community Health Project
Country:	Kenya
Intervention:	Community/Village Health Workers, malaria treatment

Document:

Changes in sources of treatment occurring after inception of a community-based malaria control programme in Saradidi, Kenya. Mburu FM, Spencer HC, Kaseje DC. *Ann Trop Med Parasitol* 1987; 81 Suppl 1: 105-10.

Abstract:

To determine the changes in source of antimalarial treatment and perceptions about malaria after the initiation of a community-based malaria control programme in Saradidi, Kenya, two identical surveys were carried out; one in March 1982 (before the programme began in May 1982) and the other in December 1984. Three areas were involved: areas A and B had antimalarial treatment provided by village health helpers (VHH's) and area C had VHH's who did not provide treatment. Two groups of randomly selected women age 15 to 59 years were interviewed: 45 in survey 1 and 92 in survey 2. A decided change in the source of malaria treatment was observed. In the first survey, 52.9% of the respondents from areas A and B combined purchased antimalarial medicine from shops; other sources were government health facilities, mission clinics, and the Saradidi community clinic. By the second survey, 85.2% of the respondents in areas A and B obtained treatment from the VHH's; no significant change occurred in area C. In both surveys the leading reasons given for people purchasing drugs from shops was that the distance to health facilities was great, that no transport was available and that shops were open when emergencies occurred. The shopkeeper frequently advised which drug to take and the dosage as well as selling the drugs. For family illnesses of unknown etiology most people (82.2% in survey 1 and 97.8%, in survey 2) went to a hospital or clinic. These results

demonstrate that the malaria control programme in Saradidi has influenced both the source of antimalarials and the attitudes people have about malaria. In Saradidi, Kenya people chose to obtain antimalarial treatment and advice from community health workers.

Project Name:	Village Health Worker Association Revolving Drug Fund
Country:	Nigeria
Intervention:	Village health worker training, VHW association, revolving drug fund

Document:

Brieger WR, Oshiname FO and Oke GA. The role of community health workers in the management of essential drugs. *International Quarterly of Community Health Education* 1994-95; 15(4): 379-394.

Abstract:

The ability to provide essential drugs not only fulfills part of the primary health care (PHC) duties of the community health worker (CHW), but also helps legitimize the role of the CHW in the community. Essential drugs are often routed through relatively inefficient government structures before reaching the CHW, thus creating problems of regular supplies and timely distribution. Few examples are said to exist where CHWs take charge of their own essential drug programs to the fullest: planning, purchasing and maintaining their own stocks. An association of CHWs in Idere, Nigeria has been doing just that since 1986-87. The Idere volunteer CHWs were trained under a WHO/TDR funded project in 1983 and subsequently formed their own independent association that managed continuing education, well projects and a revolving drug fund, among other activities. The drug fund was established from the dues paid by association members. A local wholesaler patent medicine shop owner agreed to supply the association with reduced cost bulk supplies of paracetamol, chloroquine and other basic medicines. The association formed a drug fund committee and its two members maintained a central store in Idere where members could purchase at their convenience. Self-assessment of their drug scheme was stimulated by several factors including rising wholesale prices and subsequent community reluctance to pay for medicines. In addition, the local government (LG) had begun its own CHW training in line with national PHC guidelines and priorities. LG CHWs had to collect their supplies from the LG pharmacy stores in the LG headquarters. It became possible to examine the two drug supply systems side-by-side. The main variable used to determine system functioning was whether CHWs had replenished their village drug box stocks in the previous year. Among five factors tested, affiliation (Idere Association vs. LG CHW), sex, age, residents (town or farm hamlet), and perceived willingness to pay by villagers, only group affiliation was shown to be significantly associated with stock replenishment purchases. Most (63%) of the independent Idere group had replenished their stocks compared to 35 percent of the LG CHWs. Among those who did buy new stock, Idere CHWs averaged 6.4 stock replenishment purchases during the previous year compared to 1.1 for the LG CHWs. Cultural factors such as elder CHWs' predisposition to provide free service to those in need was also identified. The Idere association used the finding as a means of improving supervision, support and purchasing procedures.

2.2 Reproductive Health Interventions

These studies involved a variety of agents from drug sellers, private pharmacy staff and market women. They address two aspects of an enabling environment, an appropriately packaged health commodity and supportive policy. The common denominator in each of the following studies is the presence of a specific health commodity including contraceptives and treatment kits. Such studies parallel the Medicine Seller interventions that use prepackaged antimalarial drugs. The focus on specific prepackaged commodities helps standardize the services given by IPSPs. Of particular note is the cautionary tale of the Cameroonian study

wherein government policy makers withdrew their support for private sector involvement. This is a clear case where an enabling policy environment is crucial for intervention success.

Project Name:	Market Based Distribution of Family Planning Commodities
Country:	Nigeria
Intervention:	Market women as CBDs, family planning commodities

Document 1:

The Ibadan Market Based Distribution Project: appraisal of the agent supervisory approach. Adeokun LA; Adejumo S; Adeniji F; Adeniyi CO; Akinpelu K; Are-Shodeinde AA; Adewunmi OO; Ekanem E; Elemide F; Ishola G. Ibadan, Nigeria, Association for Reproductive and Family Health (ARFH), 1998. iii, 35 p. ARFH Monograph Series No. 5.

Abstract 1:

This study appraises the effectiveness of the Ibadan market-based distribution (IMBD) project in Ibadan, Nigeria. The evaluation was conducted by 3 teams of facilitators in each of the 6 markets in which the project was active. Community-based agents were used to deliver maternal-child health and family planning services and to treat common ailments. The evaluation was conducted in May 1998 after 1 year of operation with agent supervisors to complement the local government area (LGA) health professional supervisors in 6 reactivated IMBD efforts. Data were obtained from focus groups. A diagnostic evaluation conducted in 1994 found that market agents were more responsive to the Association for Reproductive and Family Health (ARFH) supervision than the LGA supervision. LGAs had irregular supplies of drugs and logistics problems. In 1995, a diagnostic study found that there were still deficits in monitoring and supervision within LGAs. Agent supervisors were trained and provided with a drug kit after the study. Appraisal of the agent supervisors aimed to assess their relative success and special problems. Focus groups were used to conduct the appraisal. This appraisal presents the separate findings of market agents, agent supervisors, supervisors, and coordinators. The assessment assumed that national economic problems complicated the operations of the project. For example, resupply took 2-3 months, and clients could not afford to pay immediately. Packages were so poorly wrapped that insects invaded them. Patent medicine stores offered ignorant clients substitute drugs that may or may not be effective.

Document 2:

Family planning in traditional markets in Nigeria. Ladipo OA, McNamara R, Delano GE, Weiss E, Otolorin EO. *Stud Fam Plann* 1990; 21(6):311-21

Abstract 2:

Operations research on the Ibadan Market-Based Distribution Project in Nigeria investigated the feasibility of a contraceptive distribution system using traders in the traditional markets to sell pills, condoms, and foaming tablets. Two hundred and thirty-five female and male traders were trained and supplied with contraceptives, malaria treatments, and oral rehydration salts to sell at low prices in 39 markets. This article presents findings from qualitative and quantitative research conducted in 1985-89 to determine if the sale of contraceptives in the marketplace is acceptable to participating traders and shoppers and to identify trader and market characteristics associated with sales volume. Sales of contraceptives totaled 18,286 pill cycles, 11,818 packages of four condoms, and 4,429 packages of four foaming tablets. The average monthly sale for each participating trader was 5.3 units. Adaptations of this model are being tested in other Nigerian cities and in Accra, Ghana.

Project Name:	Marketing to Market Women
Country:	Zimbabwe
Intervention:	Market women, family planning commodities

Document:

Marketing to market women in Nigeria. Masha A :64-5. Washington, D.C., American Public Health Association, 1987. In: Proceedings of a conference on community-based distribution and alternative delivery systems in Africa, Harare, Zimbabwe, November 3-7, 1986, sponsored by the U.S. Agency for International Development, organized by Columbia University, Center for Population and Family Health and the Zimbabwe National Family Planning Council. Year: 1987

Abstract:

This paper describes (Family Planning International Assistance) the Joint Sterling FPIA Marketing project in Nigeria. For the past 10 months, this project has been selling contraceptives at very low cost through pharmacies and chemist shops, which in turn often sell to patent medicine stores located throughout the Federation. Sterling products are sold throughout Nigeria through 6 regional centers and 274 distributors with direct access to more than 5000 pharmacies, chemists, and indirectly to 20,000 patent medicine stores. A joint program to promote and sell contraceptives provided by USAID to FPIA was launched in late November 1985. The program took off quickly in all 19 states. In addition to selling low-cost, high quality contraceptives, Sterling has also undertaken a wide-ranging training program for pharmacists, nurses, midwives, doctors, and health educators employed in factories and other private business. Sales figures for the 10 months of this project indicate that it is the largest contraceptive commercial distribution program undertaken in Africa. 80% of its earnings are returned to additional family planning activities. An increasing demand for contraceptives is anticipated. Furthermore, with the funds generated by these sales, Sterling will train 580 nurse-midwives, 30 doctors, and 580 educators and will hold 1-day orientation workshops for traditional, religious, and community leaders. (Popline)

Project Name:	Private Pharmacy Training in Hanoi
Country:	Vietnam
Intervention:	Private pharmacies

Document 1:

Private pharmacies in Hanoi, Vietnam: a randomized trial of a 2-year multi-component intervention on knowledge and stated practice regarding ARI, STD and antibiotic/steroid requests J. Chalker, N. T. K. Chuc , T. Falkenberg and G. Tomson. Tropical Medicine & International Health, Volume 7, Issue 9, Page 803, September 2002.

Abstract 1:

OBJECTIVES: To assess the effectiveness of a multi-component intervention on knowledge and reported practice amongst staff working in private pharmacies in Hanoi regarding four conditions: urethral discharge [sexually transmitted diseases (STD)], acute respiratory infection (ARI), and non-prescription requests for antibiotics and steroids.

METHOD: Randomized controlled trial with staff working in 22 matched pair intervention and control private pharmacies and who were administered a semistructured questionnaire on the four conditions before and 4 months after the interventions. The interventions focused on the four conditions and were in sequence (i) regulations enforcement; (ii) face-to-face education and (iii) peer influence. Outcome measures were knowledge and reported change in practice for correct management of tracer conditions.

RESULTS: The intervention/control-pairs (22 after drop-outs) were analyzed pre- and post-intervention using the Wilcoxon signed rank test. **STD:** More drug sellers stated they would ask about the health of the partner (P = 0.03) and more said they would advise condom use (P = 0.01) and partner notification (P = 0.04). **ARI:** More drug sellers stated they would ask questions regarding fever (P = 0.01), fewer would give antibiotics (P = 0.02) and more would give traditional medicines (P = 0.03). **Antibiotics request:** Fewer said they would sell a few capsules of cefalexin without a prescription (P = 0.02). **Steroid requests:** No statistical difference was seen in the numbers who said they would sell steroids without a prescription as numbers declined in both intervention and control groups (P = 0.12).

CONCLUSION: The three interventions in series over 17 months were effective in changing the knowledge and reported practice of drug sellers in Hanoi.

Document 2:

Chalker, J. et al. STD management by private pharmacies in Hanoi: practice and knowledge of drug sellers. *Sexually Transmitted Infections* 76: 299–302 (2000).

Abstract 2:

A study of 60 private pharmacies in Hanoi, Vietnam, found that pharmacists and drug sellers provided treatment even when inappropriate, and none gave syndromically correct treatment. Five simulated clients visited each of the pharmacies and presented a scenario about a friend with a urethral discharge. Of the 297 encounters, drug treatment was provided in 250 cases (84%), yet no one gave the correct combination of drugs for treatment according to the national guidelines. In 55 percent of the encounters no questions were asked of the client, and no advice was given in 61 percent of the visits. According to questionnaires administered after the simulated client visits, and contrary to what they practiced, 51 of 69 (74%) respondents said they would refer clients to a doctor instead of treating. Few pharmacists and drug sellers provided advice about partner notification and condom use. There is urgent need to educate private pharmacists in Vietnam.

Project Name:	Social Marketing of Urethral Discharge Kits
Country:	Uganda
Intervention:	Social Marketing, pre-packaged kits, private providers including medicine shops

Document:

Social marketing of pre-packaged treatment for men with urethral discharge (Clear Seven) in Uganda. Jacobs B, Kambugu FS, Whitworth JA, Ochwo M, Pool R, Lwanga A, Tiff S, Lule J, Cutler JR. *Int J STD AIDS*. 2003 Mar; 14(3): 216-21. Medical Research Council Programme on AIDS, Uganda Virus Research Institute, Entebbe, Uganda.

Abstract:

At baseline, a total of 405 men who sought treatment for urethral discharge at drug shops (141) and private clinics (264) were interviewed by use of a pre-coded questionnaire. Only 7% were properly managed (treated according to the National guidelines, informed on condom use and partner referral): 11% at drug shops and 5% at private clinics. We implemented social marketing of pre-packaged treatment for men with urethral discharge (Clear Seven) in Uganda, and studied its feasibility, acceptability and effectiveness as a possible means to treat STDs and thereby prevent HIV. Clear Seven was distributed at private health care outlets in three rural districts and two divisions of the capital. Comparisons were made with a pre-intervention period in the same sites plus one additional rural district. There were almost universally positive attitudes to Clear Seven. Cure rate (84% versus 47%), treatment compliance (93% versus 87%), and condom use during treatment (36% versus 18%) were significantly higher among Clear Seven users (n=422) than controls (n=405). Partner referral was similar but fewer Clear Seven partners were symptomatic when seeking

treatment. Distribution of socially marketed pre-packaged treatment for male urethritis should be expanded in sub-Saharan Africa. Consideration should be given to developing similar kits for women.

Project Name:	Syndromic Management of STDs in Pharmacies
Country:	Peru
Intervention:	Pharmacy workers

Document 1:

The cost-effectiveness of syndromic management in pharmacies in Lima, Peru. Adams EJ, Garcia PJ, Garnett GP, Edmunds WJ, Holmes KK. *Sex Transm Dis.* 2003 May; 30(5): 379-87 Modelling and Economics Unit, Health Protection Agency, Communicable Disease Surveillance Center, 61 Colindale Avenue, London NW9 5EQ, United Kingdom. Elisabeth.Adams@hpa.org.uk

Abstract 1:

BACKGROUND: Many people with sexually transmitted diseases (STDs) in Lima, Peru, seek treatment in pharmacies. **GOAL:** The goal was to assess the cost-effectiveness of training pharmacy workers in syndromic management of STDs.

STUDY DESIGN: Cost-effectiveness from both the program and societal perspectives was determined on the basis of study costs, societal costs (cost of medicine), and the number of cases adequately managed. The latter was calculated from estimated incidence, proportion of symptomatic patients, proportion seeking treatment in pharmacies, and proportion of cases adequately managed in both comparison and intervention districts. Univariate and multivariate sensitivity analyses were performed.

RESULTS: Under base-case assumptions, from the societal perspective the intervention saved an estimated US\$1.51 per case adequately managed; from the program perspective, it cost an estimated US\$3.67 per case adequately managed. In the sensitivity analyses, the proportion of females with vaginal discharge or pelvic inflammatory disease who seek treatment in pharmacies had the greatest impact on the estimated cost-effectiveness, along with the medication costs under the societal perspective.

CONCLUSION: Training pharmacists in syndromic management of STDs appears to be cost-effective when only program costs are used and cost saving from the societal perspective. Our methods provide a template for assessing the cost-effectiveness of managing STD syndromes, on the basis of indirect estimates of effectiveness.

Document 2:

Syndromic management of STDs in pharmacies: evaluation and randomized intervention trial. Garcia PJ, Gotuzzo E, Hughes JP, Holmes KK. *Sex Transm Infect.* 1998 Jun; 74 Suppl 1:S153-8. University of Washington Center for AIDS and STD, Seattle, WA 98122, USA.

Abstract 2:

BACKGROUND: Improved clinic based syndromic management of sexually transmitted diseases (STDs) in Tanzania reduced HIV transmission. However, in many developing countries, people seek STD treatment in pharmacies. This study used standardized simulated patients (SSP) to assess STD syndromic management in pharmacies and evaluate the impact of an educational intervention.

METHODS: SSP presented syndromes of urethral discharge, genital ulcer, vaginal discharge, and pelvic inflammatory disease (PID) at 180 randomly selected pharmacies in Lima, Peru. These pharmacies were then randomized to receive or not receive education on STD recognition, management, and prevention counseling, and were again visited by SSP.

RESULTS: At 360 pharmacy visits before the intervention, syndromes most often recognized as STD related were genital ulcer (81%) and urethral discharge (73%) in men, followed by vaginal discharge (43%)

and PID (6%) in women. Treatments offered to 82.5% of SSP rarely conformed to international or national guidelines (for urethral discharge, 1.5%; genital ulcer, 1%; vaginal discharge, 4%; and PID, none). Only 20.5% of SSP were referred to a physician and 30% received any counseling. The intervention reached 55% of pharmacies, and produced a small but significant increase in counseling; by "intent to intervene" analysis, intervention pharmacies provided post-counseling more often than did controls (40% v 27%, $p = 0.01$).

CONCLUSION: Pharmacies usually failed to recognize STD syndromes in women, and usually provided treatment, most often with ineffective regimens. Educational interventions improved counseling. More effective interventions are needed to improve STD recognition, treatment, and referral practices.

Document 3:

Training pharmacy workers in recognition, management, and prevention of STDs: district-randomized controlled trial. Garcia P, Hughes J, Carcamo C, Holmes KK. Bull World Health Organ. 2003 Nov; 81(11): 806-814. Epub 2004 Jan 20. AIDS and STD Unit, Universidad Peruana Cayetano Heredia, Lima, Peru.

Abstract 3:

OBJECTIVES: To determine the effectiveness of an intervention for pharmacy workers in improving their recognition and management of sexually transmitted disease (STD) syndromes.

METHODS: We randomly selected 14 districts (total population nearly 4 million) from the 24 districts of low socioeconomic status in Lima, Peru. We randomly assigned paired districts to receive training and support for management and prevention of STDs or a control intervention about management of diarrhea. The STD intervention included interactive luncheon seminars on recognition and management of four STD syndromes (urethral discharge, vaginal discharge, genital ulcers, and pelvic inflammatory disease) and STD/HIV prevention counseling; monthly pharmacy visits by "prevention salespersons" who distributed materials that included "STD/HIV prevention packets" containing information, condoms, and cards given to patients for referral of their sex partners; and workshops for physicians on managing patients with STD syndromes referred from pharmacies. Standardized simulated patients visited pharmacies in intervention and control districts at one, three, and six months after training to assess outcomes.

FINDINGS: Standardized simulated patients reported significantly better recognition and management (appropriate antimicrobial regimens provided for discharge syndromes and referral to specially trained physicians for genital ulcers or pelvic inflammatory disease) by pharmacy workers of all four STD syndromes. They also reported significantly more frequent recommendations for use of condoms and treatment of partners at pharmacies in intervention districts than in control districts (by "intention-to-train" analyses, $P < 0.05$ for 47/48 primary outcome comparisons).

CONCLUSION: Training was feasible and effectively improved pharmacy workers' practices.

Project Name:	Syndromic Management of Urethral Discharge in Ghanaian Pharmacies
Country:	Ghana
Intervention:	Pharmacy workers

Document:

Syndromic management of urethral discharge in Ghanaian pharmacies. Adu-Sarkodie Y, Steiner MJ, Attafuah J, Tweedy K. Sex Transm Infect. 2000 Dec; 76(6): 439-42. School of Medical Sciences, University of Science and Technology, Kumasi, Ghana.

Abstract:

OBJECTIVES: To evaluate the training of pharmacists in Accra, Ghana, in the syndromic management of STIs.

METHODS: We randomly selected 50 pharmacy outlets that had received the training (intervention) and 50 outlets that had not received the training (no intervention). Simulated clients described the symptoms of urethral discharge to the first pharmacy staff encountered and completed a standardized questionnaire after each encounter.

RESULTS: Correct drug provision for urethral discharge improved with the educational intervention but remained relatively low (no intervention 18%; intervention 39%; $p < 0.05$). More encouraging, treatment for gonorrhea was usually correct without the intervention (64%) and improved further in the intervention outlets (76%). The treatment for chlamydia was less often appropriate but also improved (31% and 41%). Condom promotion was poor, with almost no outlets offering condoms.

CONCLUSIONS: The current training led to improvements in the treatment of urethral discharge. Future training needs to be improved, especially with regard to condom promotion. Moreover, since less than one third of simulated clients were seen by pharmacists, the training should be expanded to other pharmacy staff. With enhanced training of all pharmacy staff, the role of pharmacy outlets in STI management and prevention in Ghana and elsewhere can be optimised.

Project Name:	Training Pharmacy Agents in Contraceptive Technology
Country:	Benin Republic
Intervention:	Pharmacy agents

Document 1:

Follow-up of Performance by Pharmacy Agents Trained in Contraceptive Technology between 1998 and 2001 in Benin Technical Report # 35. March 2003. Prepared by: Perle Combarry, PhD, Bongwélé Onanga, BA, Désiré Houeto, ObGyn, Virgile Capo-Chichi, PhD, Zacharie Houendehoto, BS, Sonia Capo-Chichi, BS. Intrah, School of Medicine, The University of North Carolina at Chapel Hill Chapel Hill, NC.

Abstract 1:

With a view to ensuring quality family planning (FP) service delivery in private pharmacies in Benin, Population Services International (PSI) in collaboration with Intrah/PRIME took the occasion of the launch of the low dose pill Harmonie® to provide a training/refresher program in contraceptive technology for pharmacy agents. This collaboration, which spanned from April 1998 to December 1999, enabled training/refresher training of 140 agents from all parts of the country. Two follow-ups of the trained agents were done in 1998, which showed that the trained agents' performance was superior to that of the untrained, though revealing certain weaknesses. This prompted PSI to organize refresher sessions for the trained pharmacy agents. Therefore, in June 2000 and May 2001, two one-day sessions were organized in Cotonou. Though the last follow-up indicated that the training approach used was perceived very positively by the participating agents and pharmacists, it was noticed that the May 2001 session was not attended by as many participants. Indeed, only 58 of the 140 invited agents (41%) actually came. This made PSI question the relevance of continued training for pharmacy agents.

This is the background of PSI's request for PRIME's assistance to carry out an evaluation of the training program with a view to providing answers to the three following concerns: 1. Is FP service quality maintained in pharmacies where agents were trained? 2. Is there any service quality difference in pharmacies with trained agents and those with untrained agents? 3. Why did 59% of the agents not attend the May refresher course? What do the pharmacists think of agent training? Would they rather have the refresher courses done differently? What is their view on collaboration with PSI? In November/December 2001, a

team of consultants and resource persons from Intrah/PRIME II, Benin Health NGO Network (ROBS) and the Ministry of Health (MOH) did a summative evaluation in private pharmacies that had participated and some others that had not participated in the PSI training/refresher course on contraceptive technology: The purpose of this evaluation was to assess the efficiency and relevance of the contraceptive technology training approach.

By observing the trained and untrained agents through mock clients, testing their knowledge and interviewing the pharmacists, the follow-up team made the following assessments and recommendations: In relation to performance in counseling and pill prescription, the follow-up results show that globally, the trained agents' performance is better than the untrained for all tasks related to counseling and pill prescription. There is, however, a considerable gap for the desired performance, since 63.3% of the trained agents do not offer services according to standards. Even if reception overall is satisfactory, the trained agents do not provide information on all available contraception methods. In fact, except for the pill, other contraceptive methods are not often cited. There is no systematic investigation to determine client eligibility since less than half of the trained agents check whether the client is pregnant and only one-fourth will ask if she is breastfeeding a child under six months. Finally, the majority of trained agents provide sufficient information on the pill but two-thirds omit to tell their clients what to do in the case of warning signals. In relation to clients' rights, performance levels were, likewise, higher with trained agents in the area of client rights, particularly the right to dignity, privacy and confidentiality. However, here too, the desired performance is not achieved, since 55% of trained agents do not observe all client rights. This is true, in particular, for the right to security and continuity and the right to information.

As pointed out earlier, the trained agents do not adequately ensure client eligibility, nor provide adequate information on all of the methods. In relation to factors affecting the trained agents' performance, analysis of the factors that could positively or adversely affect agents performance has shown that 52.6% of the agents do not benefit from all the necessary conditions to work adequately. More than two-thirds get regular feedback on their performance, are encouraged for their work and are coached by the pharmacists. However, only 25% of trained agents are able to describe the tasks they were trained for, and only 9% have all the necessary work materials. In relation to the pharmacists' views on the training approach as regards to the pharmacists' views on the training approach to counseling and technological contraception, results obtained from follow-up activities clearly indicate that, on the whole, this approach is adequate according to the pharmacists who are aware of the benefits for the agents as well as for the pharmacy. However, some of them are confronted with constraints due to mobility and lack of personnel. The need to provide night watch is among the factors that most affect agents' availability.

Recommendations: As results of the findings and conclusions summarized above, the follow-up team made the following recommendations: 1. Considering the interest expressed by the pharmacists and the performance gaps that still need to be filled in, PSI should continue its in-service training program for the agents who received previous training. Specifically, PSI should plan to: a) Keep organizing update mini-sessions, focusing on agents' tasks and desired performance particularly in matters of client rights. Role games would highlight counseling and pill prescribing tasks which present more difficulty (information on methods, client eligibility), b) Organize at least two mini-sessions each time, in order to give nightwatch agents a choice, and consider changing the period, c) Develop and supply agents with a technical work aid on the main counseling and pill prescription steps. 2. In order to solve the problem of staff mobility, PSI should consider extending training to more agents in each pharmacy. 3. To improve agents' participation in training sessions, PSI should: a) Explore other training approaches to bring training closer to the agents (Amour et Vie - Love and Life – audio and video cassettes), b) Take into consideration what the pharmacists view as "Large profit periods" when organizing training sessions for pharmacy agents, c) Take into account other potential training areas including services management and children's illness (malaria, measles), d) Broadly disseminate this follow-up's results among pharmacists in order to sensitize them and foster a greater commitment from them. This could be done either directly or through the Pharmacists Order. 4. To ensure improved conditions to good agents' performance, PSI should: a) Include permanent support to the trained agents among the duties of PSI medical representatives (job description, needs assessment and Information, Education, Communication (IEC) materials supply), b) Elaborate and supply the pharmacists with a technical

summary form concerning performance factors that are compatible with their pharmacy environment, to help them understand their needs and reinforce their support to agents.

Document 2:

Assessing the Performance of Pharmacy Agents in Counseling Family Planning Users and Providing the Pill in Benin: An Evaluation of Intrah/PRIME and PSI Training Assistance to the Benin Social Marketing Program Technical Report # 37 March 2003 By: Maia A. Ambegaokar, MBA, MSc, Virgile Capochichi, MD, Boniface Sebikali, MD, MPH, Nene Stanley Echitey, MD. Intrah, School of Medicine, The University of North Carolina at Chapel Hill, Chapel Hill, NC.

Abstract 2:

In 1998, Population Services International (PSI) started a social marketing program and launched a low-dose pill (brand name, Harmonie®). In this context, PSI/ABMS developed a collaborative intervention with PRIME/Intrah in order to improve the quality of family planning (FP) services within private sector (pharmacies) by training pharmacy agents in contraceptive technology and FP counseling. In November and December 1999, an evaluation was conducted on the workplace performance of these agents when counseling a new user of FP and providing the pill. This report describes and presents the findings of that evaluation. Twelve mystery clients reported on counseling sessions conducted with 127 pharmacy agents of 71 pharmacies. These agents were categorized into one of four groups: 1) trained in '98 and updated in '99; 2) trained once in '99; 3) not trained, but working in a pharmacy where at least one agent had been trained; and 4) not trained, and working in a pharmacy where no one else had been trained. The results of the observation were scored and the scores of the first three groups of agents were compared to those of the last group. Significance levels of the difference in the means or the proportions were measured at cut-off values of $p < .01$ or $p < .05$. Both groups of trained agents were found to perform significantly better than the base group of untrained agents when the counseling session was assessed as a whole. The trained agents were more likely than the untrained ones to prescribe a low dose pill. Weaknesses remain, however, in the quality of the pharmacy assistants' counseling, as they are not yet providing comprehensive information about other methods available in the pharmacy, such as condoms and spermicides. After the mystery client visits, members of the evaluation team interviewed 115 of the agents, including 46 of the trained agents (who took a knowledge test) and 50 of the pharmacists. Two problems with the working environment of the agents were identified that may be related to the problems with counseling performance: lack of Information, Education and Communication (IEC) materials to help agents remember key messages in FP counseling and lack of supervision to reinforce proper performance. The training approach (in which agents read documentation on their own in advance of half-day formal sessions) was appreciated by agents and by pharmacists because it allowed advance preparation. Pharmacists would like to send agents to similar training and would like to see training conducted on other subjects, especially sexually transmitted diseases (STDs)/human immunodeficiency virus (HIV).

Project Name:	Treatment Kits for Male Urethritis
Country:	Cameroon
Intervention:	Pharmacy shops, social marketing

Document 1:

Treatment kit nips STDs in the bud. Anonymous. Afr Women Health. 1993 (Apr-Jun); 1:24-6.

Abstract 1:

Within the framework of a pilot project, nearly 100 pharmacies in Cameroon will start selling antibiotics in a treatment kit for sexually transmitted diseases (STDs). The objective is to control STDs as well as to reduce

the transmission of AIDS, because the presence of genital ulcers increases the risk of getting infected with HIV fifty-fold. The Ministry of Health is sponsoring the project in collaboration with Family Health International and Population Services International with fund from the U.S. Agency for International Development. This social marketing project hopes to attract clients with low product prices and availability, thereby improving the quality of STD treatment. About 90% of people with STDs go to a local healer or pharmacist, where they receive inadequate treatment. Antibiotics are often sold by untrained staff who cannot provide instructions for use. Incomplete dosages fail to cure the infection and contribute to the increase of resistant bacterial strains. The strict controls over antibiotics were relaxed recently. In 1991, the U.S. food and Drug Administration allowed the over-the-counter sale of an antibiotic drug to treat vaginal candidiasis. The Cameroon treatment kit will include appropriate antibiotics to treat the most common strains of gonorrhea and chlamydia, promote correct condom use, and include 2 packages of condoms and a partner referral card to seek treatment. A number of baseline studies are underway, including surveillance among pregnant women and commercial sex workers to learn about the prevalence of STDs, and research concerning the pathogenesis of male urethritis. The strong private pharmacy distribution system will help realize the project. The campaign messages will focus on proper STD treatment and lowering the chances of getting AIDS. Advertising will link treatment with prevention and the Prudence condom, while radio commercials and leaflets will promote the kits as an effective means of treatment for STDs.

Document 2:

AIDSCAP seeks a private sector solution to the STD self-treatment dilemma. Henry K. Aidscriptions. 1995 Mar: 26-9.

Abstract 2:

Many people in developing countries faced with long waits at health clinics, expensive prescriptions and laboratory tests, stigma associated with sexually transmitted disease (STD) clinic attendance, and the disdain of some health providers opt to buy over-the-counter drugs against their STDs at pharmacies and in markets, and treat themselves. Such self-treatment may lead to partially treated infections and serious complications, not to mention the associated increased risk of contracting or transmitting HIV from having sexual intercourse while still infected with a STD. Population Services International in collaboration with Family Health International's AIDSTECH Project developed a standard prepackaged therapy for male urethritis to be tested in a pilot program in Cameroon. The package was named MSTOP, with MST being the French acronym for STD, and consisted of a pouch containing antibiotics to treat gonorrhea and chlamydia, the two most common causes of urethritis in Cameroon, an educational brochure, detailed instructions on how to take the medication, two cards for referring sexual partners for diagnosis and treatment, and eight Prudence condoms. Medication included two tablets of cefuroxime axetil to be taken in a single oral dose and 20 tablets of doxycycline to be taken orally twice daily for ten days. The kit retailed for US\$17, at the low end of what people were willing to pay for urethritis treatment on the market, with Glaxo and Ciba-Geigy supplying the drugs at a preferential price. By the completion of all necessary preliminary studies and consultations, however, new Ministry of Health (MOH) officials had come to power who opposed the original plan of selling MSTOP without prescriptions in pharmacies and health care centers. MSTOP was therefore approved for sale March 1993 only by prescription in 21 health care facilities that served mainly university students and the military and in three private pharmacies near the university campus.

More than 86% of the patients who bought the kit reported being satisfied with it, 82% reported treatment compliance, more than 50% notified sex partners, and 84% of those who had sex during treatment used some or all of the condoms in the kit. Subsequent to the ten-month pilot ending March 1994, the MOH failed to support expanding MSTOP sales to more pharmacies to increase its accessibility. Plans for a second phase of the pilot project in Cameroon were abandoned. Change in MOH leadership, resistance from physicians and pharmacy associations, the country's drug registration laws, which precluded use of the cheapest and most effective drug, and lack of acceptance of the syndromic approach to STD management thwarted the potential success of this pilot and its future widespread programmatic expansion. Health

officials in six other countries have expressed their interest in working with AIDSCAP to test prepackaged STD therapy.

2.3 Child Health Related Studies

Project Name:	Educating Pharmacists and Drug Sellers on Diarrheal Diseases
Country:	Thailand
Intervention:	Educational Package with drug sellers and pharmacists

Document:

Impact of an educational program on the treatment practices of diarrheal diseases among pharmacists and drug sellers. Podhipak A, Varavithya W, Punyaratabandhu P, Vathanophas K, Sangchai R. Southeast Asian J Trop Med Public Health. 1993 Mar; 24(1): 32-9. Faculty of Public Health, Mahidol University, Bangkok.

Abstract:

The impact of an intervention program, measured by changes in the prescription of ORS, antibiotics and antidiarrheal drugs by those pharmacists and drug sellers after administering the proposed educational package was assessed. The results of the study indicated that, before the educational program started, pharmacists prescribed ORS for 31.4% and 15.7% of watery diarrhea and dysentery episodes, respectively. Only 18.9% and 13.3% of drug sellers gave ORS to assessors in case of watery diarrhea and dysentery. Antibiotics and antidiarrheal agents were prescribed extensively, watery and dysenteric diarrhea (84% and 56% for watery diarrhea by pharmacists and drug sellers; 92% and 60% for dysentery). Antidiarrheal drugs were used as frequently. After the educational program, the assessment of the prescription behavior of the pharmacists showed no change in ORS, antibiotics and antidiarrheal drugs prescribed to treat watery diarrhea. In dysentery, the effective percent change in prescribing ORS between pre- and post- intervention program was much higher in intervention group than the control group. For drug sellers, effective percent change in ORS usage in treatment of watery diarrhea was 11.8% compared with -7.7% in the control group. No such change was observed in treatment of dysentery. There was a slight significant change in behavior concerning use of antibiotics among subjects getting information by mail, compared to those who got full intervention, when the pre-intervention behavior, store type and treatment type was taken into account.

Project Name:	Promoting ORT Among Pharmacy Employees
Country:	Brazil
Intervention:	Pharmacy shop attendants

Document:

[Evaluating the potential of an intervention aimed at promoting oral rehydration therapy (ORT) by educating pharmacy employees] [Article in Portuguese] Oshiro Mde L, Castro LL. Cad Saude Publica. 2002 Jan-Feb;18(1):287-97. Secretaria de Estado de Saude do Mato Grosso do Sul, Campo Grande, MS, 79074-460, Brasil.

Abstract:

Diarrhea is a major cause of morbidity and mortality in childhood, and Brazilians rely heavily on pharmacies for the resolution of this and other health problems. To promote the rational use of both pharmaceuticals and oral rehydration therapy (ORT), an intervention study was performed in pharmacies in Southwestern Brazil. Semi-structured interviews showed oral rehydration solution, or ORS (50%), antidiarrheals (39%), trimethoprim-sulfamethoxazole (27%), and yeast (22%) to be the most frequently suggested drugs, whereas questionnaire responses were ORS (75%), trimethoprim-sulfamethoxazole (25%), and yeast (25%), thus revealing that more than one methodology is needed if reliable data are to be obtained. An educational intervention was applied to 86.7% of pharmacies, but acquisition of knowledge on management of diarrhea did not prevent pharmacy workers from suggesting antidiarrheal drugs instead of ORS alone. In order to have pharmacy workers comply with official protocols for episodes of diarrhea, interventions should include regulatory measures on drugs that are contraindicated for children, and the role of pharmacies and pharmacists should be reviewed.

2.4 Changing Antibiotic Prescribing Outside Africa

These three studies focus on a difficult issue, discouraging Medicine Sellers from selling a profitable and highly demanded medicine, antibiotics. Two appear to have had some success and this may relate to use of multiple approaches and repositioning antibiotic perceptions in terms of safety and appropriateness. Commercial motivations appear to have won out in the third trial.

Project Name:	Changing Behavior of Variety Store Keepers
Country:	The Philippines
Intervention:	Variety stores

Document:

The effect of an intervention on the drug-selling behavior of sarisari (variety) storekeepers in some villages in the Philippines. Isidro C. Sia, Julie Valerin. First International Conference on Improving Use of Medicines: ICIUM. Chiang Mai, Thailand 1 to 4 April 1997.

http://www.who.int/medicines/posters/3C4_TXTF.html. Department of Pharmacology, College of Medicine, University of the Philippines Manila, 547 Pecto Gil Street, Manila Philippines, Fax (532) 521-8251, pharma@health.pchrd.dost.gov.ph

Abstract:

PROBLEM STATEMENT: In the Philippines drugs are easily available to villagers through non-formal sources such as the ubiquitous sarisari (variety) stores. They are obtained from the storekeepers who consider drugs as ordinary commodity. Objective: The research determined if an intervention had an effect on the selling behavior of sarisari (variety) storekeepers on 4 commonly sold drug products.

DESIGN: Randomized controlled study **Setting:** Two groups of rural villages in northern Philippines **Study population:** The storekeepers in each of the 2 groups of villages. There were 19 evaluable subjects in the experimental group and 20 in the control group at the end of the study period (Month 12).

Intervention: The intervention consisted of focus group discussion facilitated by the community health worker in usual, informal gatherings occurring in the communities. Discussion focused on the commonly sold drugs including penicillin G amoxicillin, Biogesic & REG; (paracetamol) and attapulgitte. For the control group, topic of discussion was the nutritive value of commonly sold snack foods.

OUTCOME MEASURES: Percentage of storekeepers who practiced outright selling of penicillin G tablets as a topical remedy for wounds; amoxicillin as a rescue remedy for cough that did not respond to

cough medicines; Biogesic® as a preferred branded preparation over the cheaper generic preparations of paracetamol; and attapulgit as a remedy for diarrhea; Month 6 and Month 12 post-intervention.

RESULTS: Lower percentages of storekeepers who practiced outright selling were observed for penicillin G during month 6 and month 12 in the experimental group. Percentage for outright selling of amoxicillin decreased by month 6, but an increase was noted during month 12. No significant decreases were noted for Biogesic® and attapulgit. In the control group, no significant changes were noted.

CONCLUSION: The intervention decreased the outright selling of penicillin G and amoxicillin by the storekeepers, but not of Biogesic® and attapulgit. The problem of safety was the storekeepers' main reason for decreasing the outright selling of the antibiotics.

Project Name:	Improving Antibiotic Provision and Use
Country:	Vietnam
Intervention:	Pharmacists

Document 1:

Antibiotic use and resistance: Assessing and improving utilisation and provision of antibiotics and other drugs in Vietnam. Larsson, Mattias. Doctor’s Thesis from Karolinska Institutet, December 17, 2003. <http://diss.kib.ki.se/2003/91-7349-630-8/>. ISBN: 91-7349-630-8.

Abstract 1:

BACKGROUND: In Vietnam there were shortages of drugs until the end of the 1980's. In 1986 the "Doi Moi" economic reforms towards market economy were initiated. An expanding private health care sector emerged and the per capita drug consumption has increased dramatically. In 1987, Vietnam began to license private pharmacies. By 1996 there were over 6,000 licensed pharmacy shops. Shop owners are expected to have a university degree in pharmacy and five years experience, but in rural areas trained pharmacy assistants may have shops. By law the pharmacist should be present during all sales, but in practice shops are often left in the care of spouses, children, relatives and clerks. About 70% of private pharmacy staff are female.

AIM: To assess drug provision in the public and private sectors, antibiotic use and resistance in the community, as well as the effect of an intervention package aimed at improving case management in private pharmacies in Vietnam.

METHODS: Drug utilization was assessed in 6 provinces using 2400 prescriptions, 1200 drugs, 200 interviews with doctors and 200 medical records (I). Community antibiotic use and bacterial resistance was assessed among 200 children 1-5 years of age in the rural Bavi district using a questionnaire and disc diffusion tests (11). Antibiotic prescribing was assessed in relation to serum levels of C-reactive protein among 100 children 1-6 years who received antibiotic treatment (III). A randomized control trial assessed the effect of an intervention package (enforcement of regulation, education and peer influence) on case management of childhood mild respiratory infection, male sexually transmitted disease and dispensing of prescription only drugs (antibiotics and steroids) in 60 private pharmacies in Hanoi. Knowledge was assessed through interviews with a structured questionnaire pre and post intervention and practice through simulated client method with five encounters per pharmacy after each intervention (IV, V & VI).

RESULTS: Essential drugs were available in remote areas. The average number of drugs per prescription was high and injections were common (I) In Bavi 75% of the children had been treated with antibiotics within one month preceding the study, most commonly ampicillin, penicillin or amoxicillin. Of the caregivers deciding on treatment 67% consulted a drug seller, 22% a doctor and 11% decided themselves. Of the antibiotics 80% were purchased from private drug outlets. Of *S. pneumoniae* and *H. influenzae* 90% and 68% were resistant to at least one antibiotic, respectively (88% and 32% to tetracycline, 32% and 44% to trimethoprim/ sulphonamide and 25% and 24% to chloramphenicol, respectively). There was a significant

difference in ampicillin and penicillin resistance between the group of children previously treated with beta lactam antibiotics and the group of children not having received antibiotics (11). Elevated CRP concentrations (>10 mg/L) were detected in only 17% of the children who had received antibiotic prescription (III). Seventy pharmacy staff were interviewed of whom 60 were pharmacists or pharmacy assistants, 5 were medical doctors or medical assistants and 5 had no health training. Of the pharmacy staff 20% stated that they would dispense antibiotics for a child with cough, in practice 83% of the pharmacies did. Fifty-three percent stated that they would ask the patient questions related to breathing, in practice 10% did; Eighty one percent stated that antibiotics are not effective in short courses, in practice 47% dispensed for courses less than 5 days. Only 36% of the cases were handled according to guidelines (IV). Compliance with the prescription regulation was weak. Sixty percent said that they would not dispense steroids without prescription. In practice all but one pharmacy did (V). The intervention pharmacies improved significantly compared to the control pharmacies in all tracer conditions. For mild respiratory infections, antibiotic dispensing decreased and questions regarding rapid breathing increased. For sexually transmitted diseases, advice to go to the doctor and dispensing the correct symptomatic treatment increased. Dispensing of prednisolone and cephalexin decreased and prescription requests increased (VI).

CONCLUSION: Considering the common practice of self-medication with antibiotics through private pharmacies and high levels of antibiotic resistance there is a need to improve drug utilization and provision in Vietnam. Promoting Good Pharmacy Practice standards towards improving case management in private pharmacies is likely to have a major public health impact.

Document 2:

Improving private pharmacy practice: a multi-intervention experiment in Hanoi, Vietnam. Chuc NT, Larsson M, Do NT, Diwan VK, Tomson GB, Falkenberg T. *J Clin Epidemiol.* 2002 Nov; 55(11): 1148-55. Hanoi Medical University, Vietnam. ntkchuc@yahoo.com

Abstract 2:

The objective of this study was to assess the effects of a multicomponent intervention on private pharmacy practice. From 641 private pharmacies in Hanoi, 68 pharmacies were randomly selected and matched into 34 pairs. Each pair consisted of a control and an intervention pharmacy. Three interventions were applied sequentially: Regulatory enforcement, Education, and Peer influence. Four tracer conditions were selected: uncomplicated acute respiratory infection (ARI), sexually transmitted disease (STD), requesting the prescription-only drugs prednisolone, and a short course of cefalexin. Practice was assessed through the Simulated Client Method (SCM). The intervention pharmacies improved significantly compared to the control pharmacies ($P < .05$) in all tracer conditions. For ARI, antibiotic dispensing decreased ($P < .02$) and questions regarding breathing increased ($P < .01$). For STD, advice to go to the doctor and dispensing the correct syndromic treatment increased ($P < .01$). Dispensing of prednisolone and cefalexin decreased ($P < .01$) and prescription requests increased ($P < .01$). Our conclusion is that it is possible to improve private pharmacy practice with a multicomponent intervention.

Project Name:	Face-to-face Education to Improve Management of ARIs
Country:	Uganda
Intervention:	Private retail pharmacy and drug shop staff

Document 1:

Tumwikirize WA, Ekwaru PJ, Mohammed K, Ogwal-Okeng JW, Aupont O. Management of acute respiratory infections in drug shops and private pharmacies in Uganda: a study of counter attendants' knowledge and reported behaviour. *East Afr Med J.* 2004 Feb; Suppl: S33-40. Department of Pharmacology and Therapeutics, Faculty of Medicine, Makerere University, Kampala, Uganda.

Abstract 1:

BACKGROUND: In Uganda, private pharmacies and drug shops are important sources of drugs for the majority of the population. In addition to selling drugs, these outlets often serve as primary sources of information about illness and drug therapy. However, the appropriateness of dispensing by staff in these drug outlets has been found to be suboptimal. Yet there has been no study documenting the determinants that underlie the dispensing pattern at these outlets. This study evaluated counter attendants' training background, their knowledge of acute respiratory infections (ARI), and their reported behavior in the management of ARI in order to identify factors associated with dispensing behaviors.

STUDY DESIGN AND SETTING: This descriptive study was conducted in Kampala District, Uganda and used a cross-sectional survey research design to analyze the practice of 197 drug outlets including 28 pharmacies and 169 drug stores.

MAIN OUTCOME MEASURES: Counter attendants' training background; their knowledge of the causes, signs and symptoms of ARI; their perception of the dangers of ARI; and the drugs and advice offered for the management of mild and severe ARI.

RESULTS: Majority of the counter attendants had medical or pharmacy training. Most of them were nurses. The attendants' workload was generally low. High levels of self-medication among clients were reported at the outlets. Staff at a management level had low knowledge of the etiology, signs and symptoms, and dangers of ARI. Prescribing an antibiotic was found to be the usual practice for managing ARI cases. Counter attendants at those outlets seldom gave advice or referrals for ARI cases. In particular, patient demand was a main barrier to appropriate dispensing. Strategies suggested by attendants for improving rational dispensing were to educate the public, provide training for the attendants, and re-enforce government supervision of drug outlets.

CONCLUSIONS: This study identified several self-reported inappropriate behaviors in the outlets. The formal training background and workload of counter attendants at drug shops and pharmacies were not found to be important contributors to irrational prescribing. The results of this study suggest that a combination of regulatory and educational interventions may yield to improvement in counter attendants' practices in private drug outlets.

Document 2:

Tumwikirize WA, Ekwaru PJ, Mohammed K, Ogwal-Okeng JW, Aupont O. Impact of a face-to-face educational intervention on improving the management of acute respiratory infections in private pharmacies and drug shops in Uganda. *East Afr Med J.* 2004 Feb; Suppl: S25-32.

Abstract 2:

BACKGROUND: In Uganda, although private retail pharmacies and drug shops are the most common sources of drugs for the majority of the population, the quality of care received from these outlets has been reported as suboptimal. It is believed that lack of adequate knowledge is an important underlying factor to such practices.

OBJECTIVES: In this study, we investigated the impact of a face-to-face educational intervention on counter attendants' dispensing behavior for mild and severe acute respiratory infections (ARI) in children at private pharmacies and drug shops.

STUDY DESIGN AND SETTING: We used a quasi-experimental research design with comparison groups to analyze counter attendants' management of ARI before and after an intervention. The study was conducted in Kampala District, and used a sample of 191 registered drug outlets (27 pharmacies and 164 drug shops), stratified into two groups: 1) An experimental group that received training; 2) A control group unexposed to training. Data on the practices in the drug outlets from both groups were collected at two time-points: seven months before the intervention, and at one-month after the intervention.

OUTCOME MEASURES: Two main outcome measures were considered: a) Assessment of the child's condition. b) The dispensing practices of counter attendants.

RESULTS: The study found that despite the training, the assessment of the child's condition remained inadequate in both groups, where the child's age was the only question asked in more than 90% of cases.

High levels of inappropriate dispensing practices for both mild and severe ARI were still persistent in both groups after the intervention. Antibiotic prescribing for both conditions was very common, and barely any advice or instruction was given with dispensed drugs. Client demand for particular drugs, competition among drug outlets, and inability of most clients to afford the recommended treatments were the main reported barriers that emerged from the focus group discussions with the counter attendants.

CONCLUSIONS: The evaluation of the practices one month after the face-to-face educational intervention showed that the management of ARI did not improve in the drug outlets. While study design issues may have contributed to such findings, there are many other factors not related to knowledge and education that may indirectly hamper the promotion of appropriate dispensing in the private pharmacies and drug shops in Uganda. It is possible that a combination of interventions may contribute to improved management of ARI by counter attendants in the private drug shops and pharmacies in Uganda.

2.5 Use of Prepackaged Artemisinin-based Combination Therapy (ACT) through Medicine Sellers Outside Africa

Introduction of ACT raises many challenges in countries where a high proportion of first-line treatment is provided by the private sector. Cambodia is one of the only examples of a country that has tried systematically to make use of existing private providers to reduce inappropriate treatment and proliferation of fake drugs.

Project Name:	Access to Prepackaged Artemisinin-based Combination Therapy in the Public and Private Sector
Country:	Cambodia
Intervention:	Pre-packaging

Document 1:

National Malaria Control Programme, Ministry of Health (MOH), personal communication

Abstract 1:

When Cambodia changed first-line drug to mefloquine-artesunate in 2000 it decided to pre-package drugs in blister packs for different age and weight groups. The Central Medical Store of MOH was responsible for packaging “A+M” for the public sector, while in March 2002, after a successful pilot, a private sector blister pack Malarine® was introduced with social marketing. This pack looked different, and was distributed through private drug sellers. The packs are sold together with rapid diagnostic tests. Limited uptake of Malarine® has been tentatively attributed to use of limited television and radio communication channels and uncompetitive prices. A greater subsidy is now planned with Global Fund support.

Document 2:

Community malaria drug use practices in Cambodia: a cross-sectional study. Boukheng, Thavrin; Doun, Socheat; Duzey, Olya Maria; Kim, Sovann Yadany; Ros, Seyha; Rose, Gregory; Staley, Robert; Tsuyuoka, Reiko; and Yeung, Shunmay. Mekong Malaria Symposium Proceedings. 10-13 December 2002.

Abstract:

A recent survey of community drug practices in four Cambodian provinces along the Cambodia-Thai border revealed that the public distribution prepackaged drug combination therapy of A+M together with the socially marketed Malarine was only used by 6.1% of children, 1.8% infants and 10.8% of adults.

Document 3:

Community drug use practices in malaria in Cambodia: a cross-sectional study: Boukheng Thavrin et al.
Presentation made at the Workshop on antimalarial drug use practices in Cambodia, 14 March 2003.

Abstract:

A drug use monitoring study in different parts of the country showed that persons with fever seek treatment within 3 days of symptoms, the majority of them seek private medical treatment, and village providers are an important source of treatment recommendations. The study also revealed that when treatment is unsuccessful, patients seek care in the public sector, 60% of market and village providers offered no blood tests, 11% of patients received recommended pre-packaged treatments, first line treatment is available in the public sector, but is rare in other settings and that artesunate & quinine monotherapies are the most common treatments received, although the national guidelines emphasize combination therapy for malaria.

Section 3: Special References**3.1 Pharmacy Law***Ghana***Document 1:**

Chemical Seller Law Ghana. Personal Communication. Kojo Yeboah-Antwi, Malaria Consortium, Accra, Ghana, e-mail, 1 March 2004

Abstract 1:

Chemical sellers are recognized as key stakeholders in health care delivery and for that matter RBM in Ghana. The Pharmacy Council licenses them centrally but application is processed through zonal/regional offices. Application is made using application brochure and adding photographs and a testimonial from a prominent person (senior civil or public servant, religious leader, etc) in the locality. Another requirement is sworn affidavit from the court indicating not involvement in a police case with respect to drugs. When the Council is satisfied with the application the proposed site will be inspected. Based on recommendation the applicant will be invited for an interview that includes a written exam. It is when the applicant is successful that the license is issued to operate. The Ghana National Drug Programme (GNDP) provides funds for their training by the Pharmacy Council. I understand the training is regular and some were trained last year.

Document 2:

Reflections on health Care in Ghana, Felicity Smith, The Pharmaceutical Journal, 2002; 268: 768.

Abstract 2:

In most industrialized countries pharmacies are the principle source of medicines, but in developing countries there are other outlets. These are accepted as necessary if people in remote areas are to have access to much needed drug therapy. The Pharmacy Council in Ghana (which oversees the registration of pharmacists) licenses and provides some training for chemical sellers. In addition to these licensed chemical sellers, the activities of “drug peddlers”, especially among rural communities, have been described by many researchers. They are commonly itinerant, sell medicines alongside other products, and generally have no formal training.

*Nigeria***Document 1:**

Nigerian Pharmacy Law, Federal Ministry of Health, Chap. 92. Lagos. 1946.

Abstract 1:

Among the drugs produced and distributed under the auspices of western or allopathic medical sciences are two broad categories of drugs: prescription drugs and patent or proprietary medicines⁸. Prescription drugs are under the full control of the medical and pharmacy professions and those include drugs whose general widespread or frequent use by the population could pose harm. They include those containing opiate derivatives, antibiotics, diazepam (Valium), ephedrine, phenobarbitone and others to which Parts I, II, and III of the Pharmacy Laws apply. Pharmacy laws in Nigeria dictate that these medicines be prescribed by a trained physician and dispensed by a trained pharmacist. Whereas only pharmacists are granted license A, the licenses for selling patent medicines are of categories B and C and are granted to non-pharmacists. License B allows the sale of non-poisonous medicines and categories of poisons such as disinfectants while license C allows sellers to market only the non-poisonous drugs. Examples of such non-poisonous drugs are salicylic acid, paracetamol, chloroquine, some cough syrups, worm expellers, vitamins, blood tonic and certain eye drops. The statute stipulates that for one to be awarded a license one must have attained the age of 21 years and that one's application should be supported by two referees. The Law does not specify any minimal educational qualifications required of patent medicine sellers.

Document 2:

Pharmacy laws and practice in Nigeria. Egboh AA. Literamed Publications, Ikeja, 1984.

Abstract 2:

People in local communities continue to meet their illness care needs and demonstrate daily their willingness to pay by patronizing PMVs, as they have been doing for decades. Law requires that PMV be licensed, and there are grades of licenses. There are therefore several categories of people involved in the marketing of patent medicine. The licenses are of the category B and C. Based on the above, a PMV could be defined operationally as one duly licensed by an appropriate body or authority to sell patent medicine and who holds a patent and proprietary medicine vendors' license in the form B or C as contained in the Pharmacy Law. Holders of License 'C' can sell only proprietary or patent medicines such as acetylsalicylic acid, paracetamol, chloroquine, cough syrups, worm expellers, vitamin tablets, blood tonic and eye drops containing isotonic solutions if these are prepackaged by the manufacturer. Those with 'B' may in addition sell selected 'poisons' contained in part IV of the first schedule of the Pharmacy Law such as disinfectants, while only Pharmacists receive license 'A' and sell the full range of medication. Licensed patent medicine sellers are supposed to sell patent medicine in their original containers as they come from the manufacturers. They are therefore not allowed to dispense out of these containers or remove and replace the original labels on them. The State stipulates that for one to be awarded a license, one must attain the age of 21 years and that one's application should be supported by two referees. The law does not specify any minimal educational qualification, although by custom, the PMV is expected to have completed primary school. Every State Ministry of Health in the Federation is vested with powers to issue patent medicine license to eligible candidates each state appoints those that form the licensing authority, which carries out specific duties, and these duties include: 1) Registration of premises and issuing of licenses. 2) Inspection of premises where medical products are sold, 3) Ensuring that PMVs display conspicuously their licenses in their premises. 4) Regulating scope of medicines, which the PMVs are authorized to, licensed PMVs.

Kenya

Document:

Personal Communication – Liza Kimbo, Child and Family Wellness Shop Project, Kenya; e-mail, 16 March 2003.

Abstract:

The regulatory framework for private sector pharmaceutical sales in Kenya addresses formal pharmacies. Kenya, unlike other countries has not legislated OTC drug shops. Kenya implemented the Bamako Initiative,

which established community drug shops in about 14 districts in Kenya, with collaboration between the government, WHO and UNICEF. As a result, community drug shops are generally accepted, but only under the direct supervision of the District Medical Officer of Health, and within the Public Health Act. The ideal situation would be that they are recognized under the Pharmacy Act. The list of approved drugs for these shops is taken from the Bamako list, and the District Medical Officer may approve other drugs that are generally accepted as OTC, under his discretion. This is a different situation from Uganda, Tanzania and Ghana where the legal framework is in place for drug sellers. The government licenses Part 1 and Part 2 pharmacies run only by a pharmacist registered by the Pharmacy and Poisons Board. Nurses may prescribe and dispense a limited range of drugs and injectable medicines. Nurses need to be trained by an approved training institute and be registered with the Nursing Council of Kenya. Community Health Workers (CHWs) may be licensed to operate community drug shops under the supervision of the District Medical Officer of Health, with a short list of drugs as listed for the Bamako Initiative. These are mostly OTC. Such shops are licensed by the Medical Officer of Health, who also occasionally inspects them. The commodities sold are per the list of drugs approved through the Bamako Initiative (antimalarials, anti-fever, skin/eye ointments, painkillers, ORS, deworming, antacids etc), and additional supplies such as: Contraceptive pills, condoms, water purification liquids, disinfectants, other health and sanitary products such as toothpaste, soaps, bednets and treatment chemicals.

3.2 Home Treatment Not Always the Norm

Document:

Home treatment of 'malaria' in children in rural Gambia is uncommon. Clarke SE, Rowley J, Bogh C, Walraven GE, Lindsay SW. *Trop Med Int Health*. 2003 Oct;8(10):884-94. Danish Bilharziasis Laboratory, Charlottenlund, Denmark. sian.clarke@lshtm.ac.uk

Abstract:

Home treatment with antimalarials is a common practice in many countries, and may save lives by ensuring that more malaria cases receive prompt treatment. Through retrospective surveys we found that home treatment of young children with antimalarials was uncommon in rural Gambia. Few families kept medicines in the home in case of illness, 28% kept paracetamol and only 8% kept chloroquine. Less than 10% of cases of childhood 'malaria' had been treated with chloroquine at home, and 69% of those giving home medication did not know the correct dosage for a child. The most common course of treatment was the use of paracetamol and/or tepid sponging to reduce fever, before the child was taken to a government health facility. Treating a child with antimalarials at home was more costly than other forms of treatment. The low cost associated with the use of health services for children and the limited availability of antimalarials outside major towns contribute to the high use of government health services. This shows that that home treatment cannot be assumed to be the predominant mode of malaria treatment throughout Africa, and highlights the need for country-specific policies based on accurate local knowledge of treatment practices in both rural and urban areas.

3.3 Government Support for Medicine Seller Training

Government support was found for Medicine Seller training in two countries, Ghana and Nepal. Information about the training in Ghana was obtained at the Consultative Meeting in Accra.

Ghana

Document:

Robert Puni, Pharmacy Council of Ghana. Brief Report On Training Programmes Organized By The Ghana Pharmacy Council For Licensed Chemical Sellers (Informal Private Providers). rpuni@hotmail.com

Abstract:

INTRODUCTION: As part of its mandate to ensure the highest standards in Pharmacy practice in Ghana, the Pharmacy Council organizes annual training programmes for Licensed Chemical Sellers throughout the country. These are a group of informal private providers of medicines who are licensed under limited certificate to engage in the retail sale of over-the-counter medicines. Section 29 of the Pharmacy Act 1994, Act 489 provides the legal backing for their licensure. They are located nationwide and currently number about 9000.

The Pharmacy Council realized after coming into operation in 1995 that Licensed Chemical sellers had wide range of capacities and varying backgrounds, making it difficult to create a standardized training program to ensure compliance with the law and a high quality of service. It thus had a major aim to begin a process of bringing them to a set standard of proficiency by instruction. Thus the Pharmacy Council set out to organize training for them with the following objectives:

- To enhance skills, competence and knowledge of the Licensed Chemical Seller
- To improve upon the quality of Pharmaceutical care delivered to their clients
- To help them appreciate the laws and regulation governing their practice
- To create awareness about the implications of irrational use of drugs

This report intends to provide information about the various training programmes organized by the Pharmacy Council for the Licensed Chemical Sellers.

ORGANIZATION: The executive of the Ghana National Chemical Sellers Association (GNCSA) are brought on board in the planning of the programme, and this helps during the implementation of the programme since they assist in the publicity and organization of the programme. Letters of invitation are dispatched to all the district/unit heads of the GNCSA to inform them about the programme schedule. Invitations are also sent out through the print (See. Appendix 1.) and electronic media. This is to reach those Licensed Chemical Sellers who may not belong to the GNCSA.

Training material and logistics for the programme are prepared at the head office of the Pharmacy Council. A trainer of trainers programme is then organized for Pharmacists of the Pharmacy Council who serve as facilitators/resource persons for the training. The training is conducted in all ten regions of the country at several centers usually determined by the number of Licensed Chemical Sellers in various districts and done in consultation with the regional executives of the GNCSA. In choosing of centers and dates, the area in relation to seasons, market days, cultural and religious celebrations are some of the factors considered, since they have a major impact on participation.

The programme itself is a one day programme with three to four lectures delivered in both English and the local language predominantly Akan. The use of Akan language seemingly ensured better understanding of the various topics discussed and encouraged many participants to contribute to the discussions. Each lecture lasts for approximately forty-five (45) minutes followed by a fifteen (15) minute period for questions and contributions. All lectures start in the morning with a thirty- (30) minute snack break after the first three lectures. The last lecture is normally in the form of a case study or role-play. An open forum or discussion follows the last lecture, which normally includes concerns from the Licensed Chemical Sellers and makes it a popular segment of the training programme. Certificates of attendance and Course Handbooks are distributed at the end of the session.

Training is at a cost to the Licensed Chemical Seller but the Pharmacy Council normally subsidizes this, since it has a legal responsibility to assure the competence of these Licensed Chemical Sellers in the interest of the public. Below is a breakdown of training programmes organized for Licensed Chemical Sellers nationwide since 1998 (Table A.1)

Table A.1: Breakdown of Training Programs Organized for Licensed Chemical Sellers Since 1998

Year	No. of LCS Trained Nationwide	Topics Treated
1998	3,963	i. Management of selected diseases/conditions namely diarrhea, pain and malaria. ii. The Pharmacy Act 1994, Act 489 (with emphasis on its relevance to LCS and their business). iii. Communication Skills iv. Business ethics for LCS.
1999	4,880	i. Hematinics ii. Analgesics iii. First Aid and iv. Basic Management
2000	4,694	i. The role of the LCS in ensuring rational drug use. ii. Simple Mathematical concepts of drug dosage measurement iii. Management control
2001	NO TRAINING	REVIEW OF THE PROGRAMME
2002	5,973	i. Family Planning ii. Sexually Transmitted diseases & HIV/AIDS. iii. Worms iv. Practice standards for Licensed Chemical Sellers.
2003	6,342	i. Customer relations ii. Records management and drug supply process iii. Case study on good customer relations and patient counseling iv. Management of some emergency cases.

COVERAGE: From in-house evaluations the Council is able to train between 70–80 % of Licensed Chemical Sellers annually. This has been possible due a regulatory tool the Council employs that is taking into consideration participation in this training programme before Licenses are renewed which is an annual affair.

ADDITIONAL TRAINING: In addition to this the Pharmacy Council supports the organization of additional training workshops for selected Licensed Chemical Sellers. Recently a select few participated in a pilot training in emergency contraception, also the Pharmacy Council has aided some licensed Chemical Sellers to undergo training in a pilot franchising project under the Strategies to Enhance Access to Medicines project (SEAM) sponsored by Management for Sciences and Health (MSH). The Council however takes responsibility for ensuring the relevance and effective co-ordination of such additional training and will always encourage such programmes for Licensed Chemical Sellers.

STRENGTHS: These programmes have been well appreciated by the Licensed Chemical Sellers and boosted their confidence and image in the communities they serve:

- Participants show demonstrable interest and knowledge during the open forum, giving an indication of immediate impact.

- It has impacted positively on their practice as observed during inspections and monitoring – though this has not been demonstrated scientifically.
- It has helped in developing the competencies of Licensed Chemical Sellers in geographical areas which have little access to pharmacists
- It has improved regulatory compliance and has served as a platform for Council to know of the concerns of the Licensed chemical Sellers
- It has helped the Council staff to develop new capacities especially in the area of organizing & training such informal private providers.

WEAKNESSES:

- This was initially considered by the Pharmacy Council as a regulatory measure to fill a vacuum that hitherto existed in the training of auxiliary pharmaceutical service providers, thus modules used were not comprehensive.
- Varying backgrounds of Licensed Chemical Sellers made it complex to standardize training especially in the area of mode of delivery and level of content – in some cases some Licensed Chemical Sellers are difficult to train.
- Focus was more of improving their standard thus approach of the Pharmacy Council was initially ad hoc.
- There were no pre-training evaluations and baseline studies due to a few constraints, making it difficult to assess impact.
- Cost to the Licensed Chemical seller was a deterrent to participation in programme.
- Limited Funding for the programme also impacts negatively on the organization of this programme.
- It is difficult to evaluate impact of training scientifically due to logistical and funding constraints.

WAY FORWARD: The Council is in the process of doing a training need assessment for the Licensed Chemical Sellers. It will then source funds to convene an expert committee to review its curriculum and develop the training course on the basis of the findings. This curriculum will be a rolling one for a number of years to take care of the need for refreshers for sustained impact. The approach as is now will be that of behavior change communication and advocacy. Lessons will also be drawn from the training modules currently being used by the MSH/SEAM project to train Licensed Chemical Sellers in its pilot franchise project.

Plans are also far advanced to make room for scientific evaluations of the impact of training programmes on the behavior or practice of the Licensed Chemical Seller through operational research but this is dependent though on availability of logistics and financial resources.

CONCLUSION: There are challenges in organizing these programmes but they have been very beneficial, in affecting the practice of the Licensed Chemical Sellers. It has also demonstrated the feasibility and sustainability for Government to partner and work with informal private providers for the public good. Without these programmes the public interest the Pharmacy Council seeks to protect may not be possible. There is definitely hope of improvement in various areas of the programme.

Nepal

Document:

Drug retailer training: experiences from Nepal. Kafle KK, Gartoulla RP, Pradhan YM, Shrestha AD, Karkee SB, Quick JD. Soc Sci Med. 1992 Oct;35(8):1015-25. Institute of Medicine, Tribhuvan University Teaching Hospital, Kathmandu, Nepal.

Abstract:

Sale of modern medicines by untrained peddlers, general merchants, and other drug sellers is common throughout the developing world. Drug sellers operating in the 'informal sector' are often the first source of

health care outside the home. Reasons given by patients for using private drug sellers include expediency, convenience, efficacy of the medicines, dependability of supply, and reasonable cost. At the same time, self-medication through private drug sellers can be ineffective, wasteful, and at times distinctly harmful. Regulatory approaches to controlling drug selling in the informal sector, widely endorsed on paper through national drug control legislation, require a cadre of professional regulatory staff and enforcement mechanisms, which are too often beyond the current economic and political reach of countries. In Nepal, where rugged terrain has limited infrastructure development, the doctor to population ratio is 1:23,000, utilization of government health services averages only 0.2 visits per person per year. Retail drug outlets outnumber health posts and health centers by a ratio of 4:1 and private drug sellers often offer the only access to modern medicine for much of the population. Community surveys have found that drug retailers are very often the first and only source of health care outside the home. Given the importance of retail drug outlets and the lack of trained pharmacists, the Department of Drug Administration in 1981 established a 45-hr course for drug retailers that emphasized practical training as well as formal teaching on pharmacology, ethics, storage of drugs, and legal issues. By the end of 1989, 4096 drug retailers had graduated from the course. Still run by the Ministry of Health Department of Drug Administration, the course has proven to be administratively feasible and has been quite popular with drug retailers. Initial reservations expressed by doctors and some pharmacists were soon overcome, and the course is now well accepted by professional groups. Because the course is offered in different locations, geographic coverage has also been very good despite Nepal's logistic constraints. The operating cost of the course averages about U.S. \$18 per trainee. Informal evaluations have resulted in plans for refresher training more narrowly focused on safe dispensing and appropriate referral for a limited number of important public health problems. Since 50-90% of pharmaceutical expenditures typically pass through the informal private sector in developing countries, it is suggested that other countries consider focused drug retailer training as a response to the problems of manpower shortages and drug dispensing by unqualified staff.

ANNEX 2. INTERVENTION MATRICES

A. Medicine Sellers Intervention Inventory

Study/Project	Providers	Nature of Intervention	Evaluation/Design	Lessons/Conclusions
Medicine Sellers Intervention Trials				
<p>1. Changing home treatment by training shop keepers in rural coastal Kenya (1999-2004)</p> <p><i>Marsh et al.</i></p>	<p>Retail shop keepers</p> <p>n = 285</p>	<p>Training + Demand Generation</p> <p>The two main components of the program were skill-based participatory workshop training for groups of drug retailers and community information activities to promote appropriate sales of antimalarials</p>	<p>Intervention - control trial.</p> <p>Pre- and post-intervention monitoring of drug sales documented correct dose selling. Community household survey measured purchase of antimalarials and adherence to recommended doses. Home administration of doses confirmed by bio-assay.</p> <p>Simulated client surveys assessed vendor performance.</p> <p>Cost of setup and incremental cost of district roll out measured.</p>	<p>Training of retailers can change consumer drug preference and use patterns. Proportion of shop-treated child fevers receiving an adequate dose of treatment increased from 1% to 28%.</p> <p>Per capita costs (US\$): Development phase: \$0.02 Set-up phase: \$0.17 Annual costs: \$0.04 Cost effectiveness: \$0.84 per additional adequate treatment.</p>
<p>2. Primary care training for medicine vendors in a rural Nigerian Community (1992)</p> <p><i>Oshiname and Brieger</i></p>	<p>Patent Medicine Vendors (PMVs) and their apprentices</p> <p>n = 37</p>	<p>Training</p> <p>8 x 2hr training sessions on primary care. A participatory intervention offering primary care training to PMVs. Designed with a PMV training committee, selected by the local PMV association. Committee also contributed to baseline survey content, validated the results and used these to help plan a curriculum that met the felt needs of the vendors.</p>	<p>Intervention - control trial. Review of information on PMVs, key informant interviews, observation, and prescribing records defined training.</p> <p>Vendor primary health knowledge assessed by pre- and post-testing of intervention and control groups.</p> <p>Trainee feedback.</p>	<p>PMVs were quite receptive to training. Working through their association yielded credibility and acceptability of the intervention. Problems of sustaining knowledge gains when apprentices "graduate" were noted.</p> <p>Test scores increased significantly in intervention group from 46% to 70%.</p>

Study/Project	Providers	Nature of Intervention	Evaluation/Design	Lessons/Conclusions
<p>3. Face-to-face educational outreach on diarrhea in pharmacies. Kenya, Indonesia (1996)</p> <p><i>Ross-Degnan et al.</i></p>	<p>Retail pharmacy owners, pharmacy counter attendants</p> <p>n = 194</p>	<p>Training + IEC materials</p> <p>Field test of WHO/CDD guide for improving diarrhea treatment by pharmacists and licensed drug sellers by MOH officials. One-to-one meetings with pharmacists, shop owners; then academic detailing (persuasive training) through small group training sessions with counter attendants. IEC materials included a brochure, a poster, and leaflets for mothers.</p>	<p>Quasi intervention – control.</p> <p>Outcome (knowledge, sales of ORS, history taking, advice on fluids and food) before and after training measured through: interviews, survey, focus group discussions (FGDs) and surrogate patient visits, in a sample of study pharmacies and a comparison group.</p> <p>Long-term impact, cost, and cost-effectiveness surveys not done.</p>	<p>Significant short-term improvements in diarrheal product sales (up by 26–32%), in line with key recommended practices. Communication with customers on diarrhea treatment remained poor.</p> <p>Significant gap between reported knowledge and observed practice of ORS.</p>
<p>4. Promoting prepackaged drugs for prompt and appropriate treatment of fever in rural Nigeria (2002)</p> <p><i>Brieger et al.</i></p>	<p>Patent Medicine Vendors, Volunteer Village Health Workers, and Auxiliary Health facility Staff</p> <p>111 of 132 trained became distributors, 11% were PMVs</p> <p>Population: 30,000</p>	<p>Training + demand generation + enabling intervention + job aids</p> <p>Three types of distributors were trained to promote and sell age-specific prepackaged antimalarial drugs for preschool-aged children. Community health education also undertaken.</p>	<p>Household baseline and follow-up surveys, including FGDs and key informant interviews were conducted to determine treatment seeking, medicine use behaviors, and patient and distributor satisfaction.</p> <p>Drug sales figures and patient records were monitored and feedback given during supervision; 2,335 illness episodes followed up.</p>	<p>25% increase in use of antimalarials (almost entirely project PPDs).</p> <p>Combination of distributor types found valuable in achieving coverage in different settings. Health staff and PMVs more effective in town and VHWs in small hamlets.</p> <p>High attrition (53% PMV drop-out rate). Distributor average sales rate 35 units each per year.</p>

Study/Project	Providers	Nature of Intervention	Evaluation/Design	Lessons/Conclusions
<p>5. Improving household use of chloroquine in Zambia (2000-2001)</p> <p><i>Kanoa and Tuba</i></p>	<p>Village health motivators (VHM) including drug vendors</p> <p>Intervention: n = 81</p> <p>Evaluation: n = 575</p>	<p>Training + community education</p> <p>VHMs and vendors trained for 14 days as communicators of malaria knowledge and correct CQ dose information using National Malaria Treatment Guidelines. VHMs and vendors supplied with symptom manual. Vendors provided with dosage guides for distribution to clients. District health staff provided ongoing supervision of motivators and resupplied dose guides to vendors. 14-day training on interpersonal communication.</p>	<p>Intervention - control trial. Cross-sectional baseline and post-intervention community surveys to assess community knowledge on malaria and treatment doses. All drug vendors identified. Supervisors checked vendors' patient records monthly.</p> <p>Doses of chloroquine (CQ) given to children determined through household follow up from vendor records. Detailed costs of the intervention were not determined.</p>	<p>Formal training, continued supervision of VHMs can increase knowledge on identification of malaria and correct use of CQ for children <5 yrs.</p> <p>Post-intervention: 32% of mothers more likely to identify malaria and 60% more likely to give correct CQ dosage than controls.</p> <p>In 1999-2000, 500,000 CQ dosage leaflets produced for mothers.</p>
Franchising and Accrediting				
<p>6. Accredited Drug Dispensing Outlets (ADDO) Tanzania (2002-2004)</p> <p><i>Strategies for Enhancing Access to Medicines (SEAM) Project</i></p>	<p>Pre-existing small drug retailers (Duka la dawa baridi)</p>	<p>Quality assurance – accrediting + training + regulatory action + brand marketing</p> <p>Short course formal training of drug retailers with curriculum developed in conjunction with School of Pharmacy. Accreditation of participants and licensing to sell wider variety of essential drugs, including antibiotics and antimalarials. Creation of new cadre of pharmaceutical outlets (ADDO) is combined with marketing and commercial incentives.</p>	<p>Monitoring and supervision.</p> <p>Situation analysis in pilot districts; in-depth assessment of regulatory issues and financing instruments (taxation, Community Health Fund, National Health Insurance Fund).</p> <p>Records of ADDOs' procurement and rational dispensing practices are inspected and monitored by franchise supervisors. Compliance with standard codes of practice is expected.</p>	<p>A trained cadre of commercially motivated and regulated retailers can be licensed to provide quality pharmaceuticals through collaboration with a National Pharmacy Board and Ministry of Health; 23 outlets opened.</p> <p>Wide consensus building essential.</p>

Study/Project	Providers	Nature of Intervention	Evaluation/Design	Lessons/Conclusions
<p>7. Child and Family Wellness Shops (CFWshops™, Kenya (2003)</p> <p><i>Sustainable Healthcare Enterprise Foundation (SHEF)</i></p>	<p>Community health workers (CHWs) trained by the project operate shops under franchise.</p> <p>Over 37 shops have been commissioned.</p>	<p>Quality assurance + training</p> <p>Main goal to deliver quality, affordable essential drugs and basic health services. Model offers quality, standardized products through trained and supervised CHWs. Private sector initiative, but it operates within the framework of pharmaceutical law with district licenses for selling “Bamako-approved” drug list procured from franchise providing QA and revenue to franchise.</p> <p>CHWs have diagnosis & treatment and drug management manuals. Local partners groups are formed.</p>	<p>Sales/treatment figures are submitted to supervisors on monthly and annual basis with breakdown according to illness.</p> <p>Referral data for serious disease used as proxies for impact indicator.</p> <p>Setup and recurrent costs recorded.</p> <p>Drug quality managed through commodity supply and monitored by monthly supervision and stock reporting.</p>	<p>Model provides quality control using local trained entrepreneurs.</p> <p>Incentives include reliable product supply, brand recognition, and confidence.</p> <p>Large investment for start up infrastructure required, (approx US\$1 million; ~\$0.60–\$1.00 per capita served); “donor” opportunity.</p> <p>\$5,000 per shop set up over 3 years; opportunity for micro financing.</p>
<p>8. Essential Medicines Franchise, Ghana</p> <p><i>Strategies for Enhancing Access to Medicines: SEAM / Management Sciences for Health (MSH) / Ghana Social Marketing Foundation (GSMF)</i></p>	<p>Pre-existing licensed chemical sellers</p> <p>75 trained so far.</p>	<p>Quality assurance + training + marketing</p> <p>Conversion of the existing private chemical sellers shops into a network of essential medicines franchises. 5-week training and branding of facilities provided. Focus is on reaching underserved rural and peri-urban areas.</p> <p>Outlets operate in the private sector. Owners have incentive of access to pooled procurement of high quality medicines at affordable prices.</p> <p>Support from regulatory authorities and professional organizations was first step</p>	<p>Operational manual held by shop manager. Details standards and reporting required of the franchise. Monthly monitoring and supervision provided to ensure products and services are of high quality.</p> <p>Data collected on client presentations using combined patient / cash register.</p> <p>Quality assurance through regular monitoring and supervision + surprise visits.</p> <p>Evaluation report pending.</p>	<p>Cost and effort required for supervision is considerable but essential to maintain standards. Franchisee investment \$255.</p> <p>Financing opportunities for foundations; donor start up grants; private sector.</p> <p>Model offers quality assurance controls within commercial environment</p> <p>15,700 visits to 15 shops in one month in 2003. 35% of complaints, malaria, diarrhea or anemia.</p>

Study/Project	Providers	Nature of Intervention	Evaluation/Design	Lessons/Conclusions
Community Interventions/Donor-Supported Projects				
<p>9. Community Partners for Health (CPH): urban health coalitions. Nigeria (1994-2001)</p> <p><i>BASICS</i></p>	<p>Private medicine vendors / community-based organizations</p>	<p>Quality assurance + training</p> <p>Building on the successful partnerships formed between CBOs and private health facilities in Nigerian cities attempts were made to encourage PMVs to join the partnership for training and community accountability in other areas.</p>	<p>Reviews of process documentation, CPH committee meeting minutes, and personal interviews between project staff and key informants.</p>	<p>Medicine vendor engagement with CPHs is unpredictable. Collaboration with retailer associations may provide better links between vendors and CPH projects</p> <p>Anecdotal reports of increased sales, up to 30%.</p>
<p>10. Healthy Happy Homes (2002)</p> <p><i>Ghana Health Service / RBM / JHU/CCP Kinapharma</i></p>	<p>Chemical shop owners and shop attendants</p> <p>Part of a wider community-based education campaign.</p> <p>Shop owners trained: n = 1,035</p> <p>Shop attendants trained: n = 362</p>	<p>Demand generation + training + PPD</p> <p>Radio drama from Home-Based Care initiative communication campaign,. Aimed to educate, motivate, and demonstrate issues related to malaria and other childhood illnesses.</p> <p>A single pharmaceutical company producing pre-packaged anti-malarial drugs conducted training of the chemical sellers, including shop-to-shop orientation of shop attendants. Chemical sellers distributed IEC materials.</p>	<p>Review of program due April 2004.</p> <p>Design based on formative research on causes of malaria, care seeking, and treatment practices.</p> <p>The drug company kept records of the number of chemical sellers trained in the intervention regions.</p>	<p>Monitoring of large numbers of outlets is challenging.</p> <p>Consistency in messages from different partners about drugs is essential for commercial confidence.</p>

Study/Project	Providers	Nature of Intervention	Evaluation/Design	Lessons/Conclusions
<p>11. Improving home based management of fever in Abia State, Nigeria (2003-2004)</p> <p><i>BASICS II / SFH(PSI) / JHU/CCP</i></p>	<p>Informal retail drug sellers (PMVs) / Catchment Area Planning and Action (CAPA) Committees</p> <p>PMVs: n = 1,031</p> <p>Population: 700,000</p> <p>PMV assessment: n = 245</p>	<p>Training + demand creation + enabling intervention</p> <p>Built on efforts by the national Roll Back Malaria program to provide age-appropriate antimalarial treatment using pre-packaged drugs. Project partners provided social marketing, mass media, community mobilization, and PMV training. Master trainers (21) trained for cascade training of fellow PMVs (832). Model piloted in Aba and is subsequently being launched in Lagos and Kano. Supportive materials include shop danglers, stickers, job aids, and customer handbills. Certificates and training handbooks were given to trained PMVs.</p>	<p>Baseline health care-seeking studies were conducted by monitoring random sample of retailers to produce a detailed inventory and simulated mystery client visits. Post-intervention mystery client assessment of PMVs performance (n = 200).</p> <p>Collaborative annual household surveys including care seeking behaviors provided baseline and follow up data.</p> <p>Consumer response survey</p>	<p>Community education was achieved through PMV promotion to customers. Shop visits confirmed PMVs maintaining adequate stock and enthusiasm for the program. Informal supervisory networks evolving. Training was a key replicable component of the program costing US\$10.00 for training and \$7.00 for IEC materials per vendor.</p> <p>Retailers recommended or gave correct dosing to clients and PPD in 57% and 60% of clients respectively vs. 8% and 0% pre-intervention.</p> <p>Consumer response survey: 83% of caregivers received age-appropriate PPD; 95% reported completion of treatment course.</p>

Study/Project	Providers	Nature of Intervention	Evaluation/Design	Lessons/Conclusions
<p>12. Partnering with traditional healers and drugs sellers in Uganda. (2001)</p> <p><i>CORE conference</i> <i>Jolene Mullins</i></p> <p><i>Minnesota International Health Volunteers (MIHV)</i></p>	<p>Traditional birth attendants (TBAs)</p> <p>Traditional Healers (THs): n = 50</p> <p>Drug Vendors (DVs): n= 50</p>	<p>Training + job aids + awareness-raising events</p> <p>Part of a district child survival project; TBAs, THs, and DVs were trained for three days to recognize childhood illnesses, provide improved treatment services, and refer seriously ill children to district health facilities.</p> <p>Calendars and poster were produced as communication aids for vendors.</p>	<p>Results of baseline knowledge, practices, and coverage survey (KPC), key informant interviews, and FGDs used to select trusted retailers. District health team contributed to the training and supervision process. Vendor record keeping and performance monitored quarterly. Impact assessed from referral rates, health system utilization, and caretaker knowledge derived from records, caretaker interviews and FGDs.</p>	<p>At baseline 47% sought care for malaria at drug shops, 32% at a health unit. Post-intervention, 7% sought care at a drug shop and 71% from a health facility. Knowledge of drug dosages increased from 10% to 22% for children and from 6% to 41 % for adults. Overall community malaria awareness increased from 33% to 84%.</p>
<p>13. Utilizing the Potential of Private Health Practitioners in Child Survival (2003)</p> <p><i>Luwero District, Uganda</i></p> <p><i>IMCI Unit MOH, and USAID - SARA Project, BASICS II</i></p>	<p>Private health practitioners, including drug sellers</p>	<p>Training + policy formulation</p> <p>Model aims at determining whether negotiation sessions with private health practitioners that target specific practices lead to improvement of effectiveness of Private Practitioners' (PP) case management of childhood diarrhea, fever (malaria), and ARI. Two to three moderators conducted negotiation sessions for 20–30 PPs with follow-up monitoring and support visits.</p>	<p>Pre- and post-intervention comparison. Structured questionnaire as a simulated visit tool for surrogate mother. Designed to assess practitioners' ability to differentiate illness conditions, advise, and give treatment.</p> <p>Data on cost of implementing process collected.</p>	<p>At baseline, only 2% of PPs gave the correct medicine, none gave the correct dosage, and only 8% explained to the client how to give the medicine. Post-intervention, 73% gave the correct medicine, 50% gave the correct dosage, and 49% explained to the client how to give the drug. Similar positive results were seen in other behaviors and with other illness conditions, but no change in numbers advising ITNs.</p> <p>Recurrent costs of intervention US\$58.00 per trained private practitioner.</p>

Study/Project	Providers	Nature of Intervention	Evaluation/Design	Lessons/Conclusions
<p>14. Vendor-to-Vendor Education in Bungoma, Kenya (2003)</p> <p><i>Tavrow et al.</i></p> <p><i>Quality Assurance Project</i></p> <p><i>Bungoma DHMT (district health management team), AMREF, QAP</i></p>	<p>Wholesale counter attendants, mobile suppliers, and private drug outlets (retail shops and kiosks, retail pharmacies, private clinics).</p> <p>(District wide)</p> <p>n = 73</p>	<p>Training + IEC materials</p> <p>Partnership between public health providers and private drug retailers.</p> <p>District Health Management Team training of 73 wholesalers and mobile vendors, for one day, as outreach educators. Participants were equipped with customized job aids and posters for distribution to smaller drug outlets in the district.</p> <p>A neighbor-to-neighbor (pyramid education) component, added later, aimed at increasing malaria knowledge and demand for antimalarials among caregivers.</p>	<p>Intervention-control trial.</p> <p>Preceding formative research and care-seeking analysis informed the development of the model.</p> <p>Shop visits documented which retailers were reached. Six months after training, wholesalers and mystery shoppers visited a sample of informed and control outlets to determine shopkeeper ability to sell recommended drugs at correct doses.</p> <p>Supervisors assessed knowledge and drug stocks in outlets reached with IEC materials vs. controls.</p> <p>Neighbor-to-neighbor household survey measured recent treatment seeking behavior of caretakers.</p> <p>“How-to” manual produced.</p>	<p>Drug wholesalers can serve as communicators of malaria treatment guidelines. Types of drugs and dosages sold, questions asked of clients, and advice given improved in shops and kiosks. Possible model for improving knowledge and practices of retailers, but gap between actual and desired performance remained large.</p> <p>500 of 1,500 district outlets reached in 6 months. Cost for one district US\$8,300 (\$0.10 per beneficiary; \$17 per outlet) Combined approach: 40% vs. 14% clients were sold approved drugs; 84% vs. 44% had approved drugs in stock.</p>
<p>15. Training Retailers in Correct use of OTC Antimalarials (2001)</p> <p><i>J. Muturi, Merlin Project, Kisii, Kenya</i></p>	<p>Untrained commercial drug sellers (i.e. retail drug shop owners located far from health facilities) in two districts</p> <p>n = 74</p>	<p>Training + IEC materials</p> <p>Part of integrated vector and disease control assistance to district health authorities. Demand generation activities in the community.</p> <p>Two-day training sessions of 20 PMVs each on malaria disease, referral, communications, record keeping, and stock management for OTC antimalarial drugs; IEC job aids; supportive supervision.</p>	<p>Stocking of appropriate antimalarials increased 3 months post-training. Knowledge of signs of malaria and correct antimalarial dose for different age groups increased.</p>	<p>Short term gains in knowledge, stocking patterns, sales patterns, and client interviewing behaviors.</p> <p>Costs of training estimated US\$8.00 per trainee.</p> <p>Government scaling up in 7 more districts.</p>

ANNEX 2. INTERVENTION MATRICES

B.1 Intervention and Evaluation Mix Matrix

Interventions by Project	Country and Year Reported	Focus*	Training and Capacity			Enabling Environment			Demand Generation		Quality Assurance				
			Workshops, Courses, Orientations	Peer Education In-shop	Job Aids and Materials	Quality, Packaging Formulation	Policy & Regulation	Credit Facility	Media, Information	Community Promoters, Mobilization	Franchising, Accrediting	Community Accountability	PMV Assoc.	Monitoring & Supervision	
1	Change Home Management	Kenya 1999-2003	C, R	X						X	X				
2	Primary Care Training	Nigeria 1992	C, R	X		X								X	
3	Face-to-Face Outreach	Kenya 1996	M, R	X	X	X									
4	Promoting Prepackaged Drugs (pilot)	Nigeria 2002	M, R	X			X			X	X			X	X
5	Improved Household Use of CQ	Zambia 2003	P, R	X	X	X					X				
6	Accredited Drug Dispensing Outlets	Tanzania 2003	C, F	X			X	X	X	X		X			X
7	Child, Family Wellness Shops	Kenya 2004	C, F	X					X			X			
8	CAREshop Franchise	Ghana 2003	C, F	X				X	X	X		X			X
9	Community Partners for Health	Nigeria 2001	P, D	X							X		X	X	
10	Healthy Happy Home	Ghana 2004	P, D	X	X	X				X			X		X
11	Improving Home care: PPD in Aba	Nigeria 2004	M, D	X		X	X	X		X	X	X	X	X	X
12	Ssembabule CS Project	Uganda 2001	P, D	X		X									X
13	Utilizing Potential of Private Practitioners	Uganda 2003	C, D	X				X							X
14	Vendor-to-Vendor	Kenya 2001-03	M, D	X	X	X				X	X				X
15	Training OTC Antimalarials	Kenya 2001	M, D	X		X				X					X
Number of Projects				15	4	8	3	4	3	7	6	4	3	4	10

*Intervention Focus: 1. PMV Role: C = Central aspect of project, M = Major role with other interventions; P = Partial or adjunct role in wider intervention;

2. Type of Intervention: R = Research, F = Franchise, D = Donor Supported

B.2 Evaluation Tools and Processes

Evaluation Tools and Processes		Qualitative				Quantitative						
		Key Informant Interviews	Community, Household Surveys	Focus Group Discussions	Post Training Feedback	Community, Household Surveys	Household Case Histories	Pre- and Post-Training Test	Mystery Shoppers, Simulated Clients	Shop Surveys	Case Follow-Up	Record Checking
1	Change Home Management	X	X	X	X	X	X		X	X	X	X
2	Primary Care Training	X		X	X			X		X		
3	Face-to-Face Outreach	X	X	X		X		X	X	X		
4	Promoting Prepackaged Drugs (pilot)	X	X	X	X	X	X			X	X	X
5	Improved Household Use of CQ		X			X	X	X		X		X
6	Accredited Drug Dispensing Outlets	X	X	X		X				X		X
7	Child, Family Wellness Shops		X			X		X		X		X
8	CAREshop Franchise		X							X		X
9	Community Partners for Health	X		X	X					X		
10	Healthy Happy Home									X		
11	Improving Home care: PPD in Aba		X			X			X	X		
12	Ssembabule CS Project	X	X	X	X	X				X		
13	Utilizing Potential of Private Practitioners	X	X			X			X	X		
14	Vendor-to-Vendor	X	X	X	X	X			X	X		
15	Training OTC Antimalarials	X			X			X	X	X		X
	Number of Projects	10	11	9	7	10	3	5	6	15	2	7

B.3 Evaluation, Indicators, and Costs

Evaluation, Indicators, and Costs		Process					Output Indicators				Cost		
		Situation Analysis	Consensus Generation	Intervention on Design	Monitoring Supervision	Evaluation	Program Review	IEC Materials Produced	Number of Vendors Trained	Number New Shops Opened / Working	Economic Cost	Incremental Costs	Cost-Effectiveness Estimate
1	Change Home Management	x	x	x (D)	x	x	x	x	x		x	x	x
2	Primary Care Training	x	x	x	x	x		x	x				
3	Face-to-Face Outreach	x	x	x		x		x	x				
4	Promoting Prepackaged Drugs (pilot)	x	x	x (p N)	x	x			x	x			
5	Improved Household Use of CQ	x			x	x		x	x				
6	Accredited Drug Dispensing Outlets	x	x	x	x			x	x	x			
7	Child, Family Wellness Shops	x	x	x	x			x	x	x	x		
8	CAREshop Franchise	x	x	x	x			x		x			
9	Community Partners for Health	x	x	x		x		x		x			
10	Healthy Happy Home	x		x (p)	x		x	x	x				
11	Improving Home care: PPD in Aba	x	x	x (p)	x	x	x	x			x	x	
12	Ssembabule CS Project	x	x	x	x	x	x	x	x				
13	Utilizing Potential of Private Practitioners	x	x	x	x	x		x			x	x	
14	Vendor-to-Vendor	x	x	x (D)	x	x	x	x			x	x	x
15	Training OTC Antimalarials	x	x	x (N/D)	x	x		x	x			x	
Number of Projects		15	13	14	13	11	5	14	10	5	5	5	2

p = use of prepackaged drugs; D = training run by DHMT; N = training run by NGO

B.4 Intervention Mix Components

1. Focus on PMVs
 - a. Role of PMV
 - i. PMV training and change is central focus
 - ii. PMV involvement is a leading component of the broader community intervention
 - iii. PMV involvement is part of or adjunct to a broader community intervention
 - b. Type of Intervention
 - i. Research
 - ii. Franchising
 - iii. Donor-supported pilot or demonstration
2. Training Interventions
 - a. Workshops
 - b. Peer education
 - c. In-shop education
 - d. Job aids and materials
3. Enabling Interventions
 - a. Prepackaged Drugs and formulation, packet inserts
 - b. Policy and regulatory action
 - c. Credit facilities
4. Demand Generation
 - a. Media, information, social marketing
 - b. Community promoters
5. Quality Assurance
 - a. Franchising, accrediting, shop identifiers
 - i. Business management training
 - ii. Financing and micro-credit
 - iii. Group purchasing power
 - iv. Shop stickers and danglers
 - b. Community accountability
 - c. PMV associations: involvement and/or creation of
 - d. Monitoring and supervision