Partnerships for malaria control: engaging the formal and informal private sectors
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A review commissioned by the UNICEF/UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases (TDR), in collaboration with the Working Group on Financing and Resources of the Roll Back Malaria Partnership, chaired by The World Bank
Prepared by HLSP Institute, London, UK

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Contents

ABBREVIATIONS iv
DEFINITION OF TERMS v
FOREWORD vii
EXECUTIVE SUMMARY viii

1. INTRODUCTION 1
   1.1 Why this review? 1
   1.2 Objectives in working through public private partnerships 1
   1.3 Methodology 2

2. THE PLAYERS AND THE PLAYING FIELD 5
   2.1 Who are the players? 5
   2.2 The playing field 5
   2.3 The public sector—functions, strengths and challenges 6
   2.4 The private health sector—pursuing interests within a government-regulated environment 8
   2.5 The public-private interface 9
   2.6 Health service clients—how do they make their choices? 9

3. TOOLS FOR EFFECTIVE MALARIA CONTROL 13
   3.1 Insecticide-treated nets and insecticides 13
   3.2 Antimalarial drugs 19
   3.3 Information, education and communication 23

4. STRATEGIC OPTIONS FOR ENGAGING THE PRIVATE SECTOR IN MALARIA CONTROL 27
   4.1 Teaming up for scaling-up 27
   4.2 Strategic options for private sector engagement 27
   4.3 Demand side schemes: key strategic options 29
   4.4 Supply side schemes: key strategic options 34
   4.5 Policy level: key strategic options 48

5. WHAT ARE THE PRIORITIES FOR IMPLEMENTATION RESEARCH? 59
   5.1 Private sector providers 59
   5.2 Consumers and commodities 60
   5.3 Policy makers 61

6. CONCLUSIONS 63

REFERENCES 66

ANNEX 1: ANNOTATED BIBLIOGRAPHY 71
## Abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>ACT</td>
<td>Artemisinin-based Combination Therapy</td>
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<tr>
<td>ADDO</td>
<td>Accredited Drug Dispensing Outlets</td>
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<td>AMMP</td>
<td>Adult Mortality Mortality Project</td>
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<td>AMREF</td>
<td>African Medical and Research Foundation</td>
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<td>BCC</td>
<td>Behavior Change Communication</td>
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<td>BI</td>
<td>Bamako Initiative</td>
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<tr>
<td>CBO</td>
<td>Community-Based Organization</td>
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<td>CIDA</td>
<td>Canadian International Development Agency</td>
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<td>CQ</td>
<td>Chloroquine</td>
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<td>CFW</td>
<td>Child and Family Wellness</td>
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<td>CHW</td>
<td>Community Health Worker</td>
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<tr>
<td>CPM</td>
<td>Centre for Pharmaceutical Management</td>
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<tr>
<td>DALY</td>
<td>Disability Adjusted Life Year</td>
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<tr>
<td>DDT</td>
<td>Dichloro-Diphenyl-Trichloroethane</td>
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<tr>
<td>DEC</td>
<td>Disease Endemic Country</td>
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<tr>
<td>DHMT</td>
<td>District Health Management Team</td>
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<td>DHS</td>
<td>Demographic Health Survey</td>
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<tr>
<td>EDAT</td>
<td>Early Diagnosis and Treatment</td>
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<tr>
<td>GFATM</td>
<td>Global Fund to fight AIDS, TB and Malaria</td>
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<td>GMP</td>
<td>Good Manufacturing Practice</td>
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<td>HBM</td>
<td>Home-Based Management</td>
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<td>IEC</td>
<td>Information-Education-Communication</td>
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<tr>
<td>IHRDC</td>
<td>Ifakara Health Research &amp; Development Centre</td>
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<td>IHSD</td>
<td>Institute for Health Sector Development</td>
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<tr>
<td>IMCI</td>
<td>Integrated Management of Childhood Illness</td>
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<tr>
<td>INN</td>
<td>International Nonproprietary Name</td>
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<tr>
<td>IPT</td>
<td>Intermittent Presumptive Treatment</td>
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<td>ITN</td>
<td>Insecticide Treated Net</td>
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<td>JICA</td>
<td>Japan International Cooperation Agency</td>
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<td>KINET</td>
<td>Kilombero Net Project</td>
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<td>LCS</td>
<td>Licensed Chemical Sellers</td>
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<td>LLIN</td>
<td>Long-Lasting Insecticidal Net</td>
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<td>LSHTM</td>
<td>London School of Hygiene and Tropical Medicine</td>
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<tr>
<td>MDG</td>
<td>Millennium Development Goal</td>
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<td>MICS</td>
<td>Multiple Indicator Cluster Survey</td>
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<td>MMV</td>
<td>Medicine for Malaria Venture</td>
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<td>MOH</td>
<td>Ministry of Health</td>
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<td>MOU</td>
<td>Memorandum of Understanding</td>
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<td>MSH</td>
<td>Management Sciences for Health</td>
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<td>NGO</td>
<td>Non-Governmental Organization</td>
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<td>NIC</td>
<td>Net Impregnation Campaign</td>
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<td>NMCP</td>
<td>National Malaria Control Programme</td>
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<tr>
<td>OTC</td>
<td>Over-the-Counter</td>
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<td>POM</td>
<td>Prescription Only Medicine</td>
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<td>PMV</td>
<td>Patent Medicine Vendor</td>
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<td>PPAM</td>
<td>Pre-Packaged Antimalarial Drugs</td>
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<td>PPP</td>
<td>Public Private Partnership</td>
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<td>PSI</td>
<td>Population Services International</td>
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<td>PSP</td>
<td>Private Sector Provider</td>
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<td>QA</td>
<td>Quality Assurance</td>
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<td>RBM</td>
<td>Roll Back Malaria</td>
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<td>RDT</td>
<td>Rapid Diagnostic Test</td>
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<td>RRP</td>
<td>Recommended Retail Price</td>
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<td>SEAM</td>
<td>Strategies for Enhancing Access to Medicines</td>
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<td>SFH</td>
<td>Society for Family Health</td>
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<tr>
<td>SHEF</td>
<td>Sustainable Healthcare Enterprise Foundation</td>
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<tr>
<td>SHI</td>
<td>Social Health Insurance</td>
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<tr>
<td>SM</td>
<td>Social Marketing</td>
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<tr>
<td>SP</td>
<td>Sulfadoxine-Pyrimethamine</td>
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<tr>
<td>STI</td>
<td>Sexually Transmitted Infection</td>
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<tr>
<td>TEHIP</td>
<td>Tanzania Essential Health Interventions Project</td>
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<tr>
<td>TDR</td>
<td>UNICEF/UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases</td>
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<tr>
<td>TMA</td>
<td>Total Market Approach</td>
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<tr>
<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
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<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
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<tr>
<td>WHOPES</td>
<td>WHO Pesticide Testing Scheme</td>
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<tr>
<td>VAT</td>
<td>Value Added Tax</td>
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<tr>
<td>VHW</td>
<td>Village Health Worker</td>
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Definition of terms

Accreditation: A process in which an authorized body (accrediting body) reviews an organization on an initial and ongoing basis, to ensure that it is meeting certain standards and provides approval (often in the form of certification) if these standards are met.

Bundling: Commodities delivered in the same package, such as nets with retreatment kits (physical).

Conversion Franchise: Franchise that permits existing businesses to join a franchise system to use its recognized name and trademark and operating system (see also ‘social franchising’).

Market: The sales of products of a particular type to a defined group of customers. An existing market is most likely to be served by a range of competitors with existing customer loyalties and established distribution channels.

Marketisation: Exposure to market forces, usually resulting in increased private sector involvement.

Market priming: A temporary, transitional intervention involving the procurement and distribution of goods (e.g. ITNs) in order to promote demand for the goods, stimulate commercial markets and strengthen unsubsidized distribution channels.

Private: The word denotes two sets of structures; the for-profit private encompassing commercial enterprises of any size and the non-profit private referring to Non Governmental Organizations, philanthropic entities and other not-for-profits.

Private Sector Providers: Any organisation, structure or individuals belonging to the private sector working in the delivery of services in health or related sectors either for profit or not-for-profit.

Positive Externalities: These arise when a service provides benefits to the community above and beyond those enjoyed by the individual. Examples include rational drug use, which provides positive externalities to future patients in the form of a reduction in the rate of growth of resistance. Insecticide treated nets may also have positive externalities if they reduce malaria transmission.

Public Private Partnerships (PPPs): Any explicit joint programme or project involving public and private collaboration to provide services. These include contracting between the public sector (either governments or development agencies) and private providers to provide goods and services. The services can include social marketing or direct provision of health care. It can also involve private finance initiatives in which private organisations (usually a mixture of financial institutions, construction companies and private providers) work in partnership with governments to support infrastructure development.

Public Sector: Refers to national, provincial/state and district governments; municipal administrators, local government institutions, all other government and inter-governmental agencies.

Social Franchising: A process by which a developer of a successfully tested social concept, the franchiser, in order to scale up the coverage of a target group and the quality of product (services), enables others, the franchisees, to replicate the model, using the tested system, using the brand name, in return for social results, system development and information on impact. In the health sector, social franchising aims to leverage the efficiency and incentives of the for-profit sector for the distribution of services and products that improve the quality, access to, awareness of and/or affordable pricing of products and services with public health benefits.

Social Marketing: The application of commercial marketing technologies to the analysis, planning, execution and evaluation of programmes designed to influence the voluntary behaviour of target audiences in order to improve their personal welfare and that of society.

Total Market Approach: The realization of a comprehensive analysis of the overall market for the product or service, including an assessment of the comparative advantages of different actors on the supply-side, in terms of their ability to deliver products at a range of prices to specific market segments.
Many malaria-endemic countries continue to experience unacceptable levels of morbidity and mortality from malaria. There is an urgent need to rapidly and effectively scale up treatment and control of malaria through the optimal use of all available channels – private and public – to increase and sustain coverage with existing control tools.

In times of increasing global attention and financial commitments to malaria control, the delivery of existing control tools still poses a major challenge. In this situation, the fight against malaria needs an active engagement of all sectors of society, both public and private.

In many settings, the interaction between public and private sectors is still non-existent or characterized by benign neglect. While some attempts have been made, to date, the private sector has not been sufficiently engaged to utilize fully its comparative advantage. But informal and formal private sector providers (PSPs) already play a critical role in many stages of malaria control. The informal health sector, for example, is the major supplier for malaria treatment in most countries.

In the absence of adequate regulation and enforcement, what can be done to supply effective, good quality medicines, at prices affordable to the poor, through these informal channels? What are key strategic options for involving private sector entities in malaria control?

Such questions led the Roll Back Malaria (RBM) Working Group on Financing and Resources to explore strategies for engaging the private sector (both formal and informal) to increase and sustain coverage of malaria control activities. While there is a growing, at times controversial, body of knowledge - both in the academic and grey literatures - on the topic, a thorough review of the literature, combined with case studies of recent field experiences, was still missing.

The development of this document was led by one of the constituencies of RBMs Working Group, the Special Programme for Research and Training in Tropical Diseases (TDR) at the World Health Organization (WHO). The preparation of the manuscript was commissioned to HLSP Institute, London (UK).

We thank the various contributors to this collaborative effort, including the writing team at HLSP Institute, the case study writers in various disease-endemic countries, reviewers of different versions of the manuscript and staff at our institutions.

We hope that this document will be useful to policy makers and implementers to provide evidence-based guidance for options to involve the private sector and using public-private partnerships in the expansion of malaria control interventions, both curative and preventive.

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Chair, Working Group on Financing and Resources, Roll Back Malaria Partnership
Executive summary

In developing countries, informal and formal private sector providers (PSPs) play a critical role in malaria control. Ambitious new benchmarks for malaria control have been set through the Millennium Development Goals and the Abuja targets. In many countries, policy makers and managers are beginning to work with, and not against, existing health seeking and provider behaviours. Public private partnerships (PPPs) enable countries to pool knowledge and resources, and to combine the different strengths of public and private organizations. The key objectives of PPPs for health are to increase coverage of essential health interventions, improve the quality of care provided, and control excessive health care costs to users. PPPs represent a wide spectrum of possible relationships between public and private actors, and civil society, for the provision of public health and health care services. For effective malaria control at country and sub-regional level, strategic frameworks for implementation through PPPs need to be created.

The review presents the market and policy context of nets, insecticide treatment and antimalarial drugs, and summarizes the evidence regarding access and equity issues. The bulk of the evidence presented comes from sub-Saharan Africa due to the abundance of literature. Country experiences are used to illustrate strategic options, integrated approaches and PPP arrangements in specific market contexts.

The review emphasizes that malaria control interventions must take into account health care utilization patterns of poor people, the widespread poverty in developing countries and the limited capacity of governments to provide quality services, enforce regulatory control and protect consumers’ rights. Routes to market are well developed for mosquito nets, but require government intervention for insecticide treated nets (ITNs) and insecticide retreatment, such as market priming. Provision of antimalarial treatment is dominated by the informal and formal private sector, and suffers problems such as inefficiency, profit motivation of PSPs, low quality commodities and counterfeit drugs. Due to emerging antimicrobial resistance, many disease endemic countries have integrated artemisinin-based combination therapy (ACT) into their treatment policy, despite high drug costs.

The document discusses key strategic options for private sector engagement in order to scale up malaria prevention and treatment. On the demand side, these include voucher schemes, packing inserts, IEC material, verbal instructions and insurance schemes. On the supply side, key options include pre-packaging of antimalarial drugs, bundling of nets and insecticide, product branding, promotion of rapid diagnostic tests, peer education and training, social marketing and social franchising. Presented strategic options for policy makers are removal of taxes and tariffs, a variety of regulatory controls, price control (including recommended retail prices and differential pricing), promotion of generic drugs and strategic market analysis and development.

The evidence shows that social franchising has considerable potential for integration into large-scale programmes in developing countries, and that governments can take the leadership in taking it to scale within PPP arrangements. Subsidies targeted at vulnerable or high risk groups are a powerful and much needed tool to increase equitable coverage of ITNs at population level. Education of PSPs can be successful in improving dispensing practices, communicating new treatment guidelines, and turning medicine sellers into active health care providers. Educational interventions can be provided by public sector workers and can be rolled out. Social marketing has successfully been taken to scale for ITNs, insecticide treatment kits, antimalarial drugs and rapid test kits, and has started to concentrate more on the development of a sustainable commercial market for malaria commodities.

Governments should spearhead strategic market development for ITNs based on comprehensive analysis of the total market, including public, social marketing, NGO and private providers, as well as consumer demand. Early experiences regarding the programmatic deployment of ACT are accumulating and the drugs will require considerable subsidy for the poor to benefit
equally from effective treatment. A central function of government remains stewardship, such as regulation, in order to oversee the complex health systems that have evolved over time. Stewardship functions remain critically under-resourced in most developing countries.

The document also discusses emerging priorities for implementation research around the provision of treatment by formal and informal private service providers, home management of uncomplicated fever episodes, social franchising approaches, development of commercial markets for ITNs, treatment and retreatment of nets, attitude and practices in relation to private service providers and evaluation of PPP arrangements.
PARTNERSHIPS FOR MALARIA CONTROL: ENGAGING THE FORMAL AND INFORMAL PRIVATE SECTORS – TDR/GEN/06.1
1. Introduction

1.1 Why this review?
The private sector plays a critical role in malaria control. In many disease endemic countries, over 50% of febrile episodes are treated by retailers in the private sector. These include pharmacists, drug shop staff with minimal medical qualifications, and shopkeepers and street vendors with no medical training [Deming et al., 1989; Ejezie et al., 1990; Yeneneh et al., 1993; McCombie, 1996; Ndyomugenyi et al., 1998; Molyneux et al., 1999; Hamel et al., 2001]. The manufacture of anti-malarial drugs and mosquito nets, as well as the marketing, distribution and sale of these commodities is dominated by private sector providers (PSPs).

Poor people in particular use PSPs, because they are often easier to reach than public sector providers, and their supply chain systems usually work better. The type and duration of treatment provided by PSPs is largely determined by the client's ability to pay, and tablets are commonly sold by the unit rather than as a complete treatment course, which affects compliance and cure rates. Access to affordable and good quality malaria control services for the poor is a particular concern. Poor people are highly vulnerable to the drain on their resources resulting from ineffective treatment, and to the potentially catastrophic costs of serious illness. Both may lead to further impoverishment.

While some attempts have been made, to date, the private sector has not been sufficiently engaged to utilize fully its comparative advantage. Effective collaboration between the public and private sectors is crucial to ensure a better coverage with anti-malarial drugs, such as antimalarial combination therapies, or preventive approaches like insecticide treated nets (ITNs). With more and more countries changing their malaria treatment policy to ACTs, the problem of financing of antimalarials has become acute. The recent report Saving Lives, Buying Time [Arrow et al., 2004] suggests that without financing from the global community, malaria mortality could double over the next one or two decades and transmission will intensify.

If engagement and collaboration are the way forward, what form should this take? Where regulation and its enforcement are weak, what can be done to ensure enhanced access to, and supply of effective, quality assured medicines, at prices affordable to the poor, through these informal channels? Issues such as pricing subsidies, financial incentives, distribution mechanisms, quality assurance and monitoring counterfeit products come to mind. Educating and empowering consumers is an important aspect in this regard as well.

This document aims to provide action-oriented and evidence-based guidance, applicable and/or adaptable to various countries and contexts, for options to involve the private sector and using public-private partnerships (PPPs) in the expansion of malaria control interventions. It is based on current recognised best practice in treatment and prevention of malaria, and draws lessons mainly from experience in Sub-Saharan Africa and Asia.

The document also advocates implementation research and illustrates how different options lead into country-specific implementation research studies. It is therefore a 'hands-on' publication for policy makers and advisers, organisations financing or implementing malaria intervention programmes, programme managers and staff of Ministries of Health.

1.2 Objectives in working through public private partnerships
Partnerships for public health are receiving increasing attention in national as well as international policy discussions, in high and low income countries. As many malaria-endemic countries continue to experience unacceptable levels of morbidity and mortality from malaria, there is an urgent need to rapidly and effectively scale up prevention and treatment of malaria through the optimal use of all available channels – private and public.

At the global level, PPPs for new product development are accelerating investment of knowledge and resources in research activities. For the first time in decades, the R&D pipeline for antimalarials has been invigorated through the Medicines for Malaria Venture (MMV), a public-private partnership begun in 1998.
At country level, governments are working towards the achievement of the Millennium Development Goals (MDGs) and other important national objectives. Governments are increasingly recognising the role of both formal and informal sectors in health care, and developing the appropriate policy and regulatory environments. As this review demonstrates, countries are using PPP arrangements to pool knowledge and resources, and combine the different strengths of public and private organizations, along with civil society groups, in addressing health problems in poor countries.

Policy makers and managers are beginning to work with, and not against, existing health seeking and provider behaviours, and to strengthen existing markets through appropriate use of incentives with both supply and demand sides, while ensuring that free or highly subsidized malaria control commodities are accessible to the poorest.

1.3 Methodology
The review was conducted by a technical team comprising a lead writer and national consultants from Disease Endemic Countries (DECs). The contracting agency, the HLSP Institute, provided health policy and other technical inputs, project management, and research support. The DEC consultants each carried out a rapid country assessment on PPPs for malaria control using a question and issues guide.

Box 1
What is a public-private partnership for health?

PPPs involve at least one private for-profit organization and at least one not-for-profit or public organization. The partners in a PPP have shared objectives for the creation of social value, often for disadvantaged populations. The core partners agree to share both efforts and benefits [Reich, 2002, p.3].

The aims of PPPs for health are to:

- increase coverage, especially for essential health care priorities,
- improve the quality of care delivered by providers, and
- control excessive health care costs to users, especially the poor.

The three objectives are interlinked, for example, subsidising essential health care services is often central to strategies for increasing coverage.
They collected national published and unpublished literature, developed the country assessments and explored potential options for implementation research and scaling up. The countries for the rapid assessments were selected on the basis of their particular experiences in innovation and scale up of malaria control interventions.

An extensive literature review was conducted, drawing on published and grey literature. The bulk of the evidence cited comes from sub-Saharan Africa due to the abundance of literature. The focus of the review was on experience and options at the national and sub-regional level, however, aspects of the international drug access PPPs were also considered. A total of 86 key informants were interviewed. The document benefited from review by the RBM Partnership Sub-Committee on the Financing of Antimalarial Commodities and from external peer review.
2. The players and the playing field

Health providers in both the public and private sectors, whether formal or informal, play a key role in delivering preventive and curative health interventions. The following sections introduce the main players in health care provision and aim to describe the market context in which these providers function.

2.1 Who are the players?

In broad terms, the health care economy is made up by ‘providers’ (the supply side) and ‘consumers’ who are either ill or healthy (the demand side). The various actors can also be categorised as part of the formal or informal (unregulated) sectors.

The public sector’s health care delivery system may be defined as comprising all providers who exist inside the public sector, and who receive some kind of remuneration for their health-related work from the government. Levels of training, skill and competences vary tremendously among public sector providers. Community health workers, for instance, have received minimal, often one-off training without any refresher courses, whereas medical specialists may have received training comparable to their colleagues in advanced market economies.

The private health sector comprises all providers who exist outside the public sector, whether their aim is philanthropic (not-for-profit) or commercial (for-profit), and whose aim is to treat illness or prevent disease. In the last few decades, the number of personnel with health-related skills, who are willing to offer services for payment, has increased sharply [Bloom and Standing, 2001]. They include large and small commercial companies, groups of professionals such as doctors, national and international non-governmental organizations, and individual providers and shopkeepers. The services they provide include hospitals, nursing and maternity homes, clinics run by doctors, nurses, midwives and paramedical workers, diagnostic facilities (e.g. laboratories and radiology units), and the sale of drugs from pharmacies and unqualified static and itinerant drug sellers, including general stores [Mills et al., 2002]. In most developing countries, non-governmental organizations (NGOs), community based organizations (CBOs) and faith based organizations have become increasingly important players both in sector provision and in monitoring and accountability. They are typically not-for-profit private providers, with international, national or local reach.

Finally, households and individual ‘consumers’ are key but often underrated actors. Households play a dual role – as users of health services and as producers of health through the delivery of home-based interventions and in their everyday health behaviors [World Bank, 2004]. Self-treatment (where no qualified provider is consulted) with pharmaceutical drugs is one of the main forms of health care treatment in developing countries. In some countries, on average 90% of a household’s health expenditure is on drugs. The important topic of ‘consumers’ is further discussed towards the end of this section.

2.2 The playing field

In many developing countries, the health sector resembles a pluralistic system, without effective government oversight [Bloom and Lucas, 2000; Leonard, 2000] and involves a wide variety of actors who deliver health-related goods and services. In these situations, the boundary between public and private sectors has become blurred [Mills et al., 1997]. Chinese government health facilities, for instance, charge fees and use profits to augment health worker income [Bloom et al., 2001]. Other countries allow a range of coping strategies by public sector health workers, such as allowing health workers to practise privately in their spare time, either on their own account or working for owners of private facilities. This may be legal or may not be strictly legal or controlled. Public hospitals may operate their own private wards and manage the income from them. There has also been a widespread growth in informal payments to health workers, and people using government facilities often expect to pay. If public services become heavily dependent on fee income, there may be little to distinguish them from private enterprises that operate in the interest of their owners rather than in that of the general public.

Interactions between public and private sectors, and with the demand side are complex. Rises in literacy levels have enabled households to address health related
problems and make choices. Many countries have seen public sector provision decline in extent and quality [Agyepong, 1999]. In some countries, the ‘marketisation’ of services has become widespread, with the expansion of the private sector, alongside increased dual practice and unofficial fees. One of the most striking features of marketisation in the health sector is the rapid growth of drug availability. Policies of economic liberalisation, liberalisation of rules governing medical practice and the improvement of transport networks have lead to the expansion of the health sector in general, and to increased distribution and sale of health commodities. Another result of the marketisation is that the rapidly growing private services compete with the public sector for trained human resources. This both weakens the public services and opens possibilities of using private sector resources to promote public health objectives.

The service delivery chain consists of three sets of actors: policy-makers, providers and people, the majority of them poor. The framework of their relationships determines accountabilities: in a direct market transaction, e.g. between a private provider and a sick person, the consumer can hold the provider accountable (‘short route of accountability’). If they are dissatisfied, they have power over the provider with repeat business or with social or legal sanctions. For health services provided by the public sector, there is no direct accountability of the provider to the consumer, because service provision is not through a market transaction but through the government taking responsibility. This ‘long route of accountability’ from clients as citizens to policy-makers, and policy-makers to providers, suffers from weaknesses, the most important one being the almost complete lack of voice of poor people to influence policy-makers [World Bank, 2003, p.6].

In South and South East Asia, where the informally qualified sector is beginning to dominate the ambulatory care market, poor people are likely to use private providers for common illnesses. In India the private sector now provides 80% of all outpatient care, and in Bangladesh it treats 90% of child cases of acute respiratory infection and diarrhea. In rural areas of Bangladesh private providers of ambulatory curative care outnumber the public sector by 12 to 1. However, public facilities often remain the main source of personal and collective preventive health services: for example, in Bangladesh, over half of all visits to government health posts are for immunization [IHSD, 2004]. In the least developed countries in Africa, the for-profit private sector is less prominent. Recent health utilisation surveys in Zambia show that poorer and rural people are still more likely to use first level public health care facilities for outpatient care, while the richest quintile uses government hospitals and private facilities.

### 2.3 The public sector- functions, strengths and challenges

The public sector is responsible for the oversight of public health and health care services, and importantly, for ensuring access of poor people to quality health care and preventive services. It does this through both direct provision of services, and indirectly, through a range of partnership and contracting arrangements with the private sector.

There are a range of constraints to expanding access to quality health services: as well as an absolute lack of resources, access to health interventions is hindered by problems of demand, weak service delivery systems, lack of policies for health as a cross-sectoral issue, and constraints related to governance, corruption and geography. The key constraints on public sector supply are the lack of financial resources and technical and logistic capacity.

Clearly, poverty and equity considerations provide a powerful justification for an effective public health system providing malaria control interventions. Equally, public intervention in malaria control is justified on the basis of a range of market failures, which means that purely private delivery and financing of malaria control interventions would lead to inefficient outcomes from society’s point of view [Hanson et al., 2004; see box 7 on public and private goods in malaria control]. For instance, residual spraying programmes are unlikely to attract interest from private markets due to their ‘public good’ character, and provision by public services remains essential. However, severely constrained public sector
health budgets in most malarious countries mean that it is difficult for governments to implement even those interventions which are clearly public goods. The cost of achieving high coverage with a preventive intervention such as residual house spraying would consume a substantial part of a poor country’s total health allocation. Furthermore, the implementation would present many operational and logistical challenges.

The WHO World Health Report Health Systems: Improving Performance [WHO, 2000] has identified stewardship as a central function of government in managing the health system. Some of the key functions concern the management of the interface between public and the private sectors, such as the ensuring of referral pathways between public and private sector providers, or stewardship roles such as regulation and the licensing of private practitioners. Stewardship functions are critical but under-resourced in most developing countries. Some services, especially those from informal providers, are not regulated at all. Paradoxically, private sector provision is greatest in poorer countries, which are also those that tend to lack clear policies towards the private sector [Smith et al., 2001].

Government regulatory and monitoring strategies are becoming increasingly important in the curtailling of the health damaging multi-million trade in counterfeit malaria drugs [Dondorp et al., 2004]. Guidelines for the development of measures to combat counterfeit drugs have been produced [WHO, 1999], but most developing countries do not have the infrastructure and financial resources to implement them [Taylor et al., 2001]. Goodman et al. [2004] found in Tanzania: “considerable illegal stocks of antimalarials, antibiotics and injectable drugs in drug stores, indicating weak regulation. These stocks provided the community with a readily accessible source of medicines, which must be balanced against the possible risks of inappropriate drug choice and dosing, adverse drug reactions, and inadequate follow-up. Moreover, the illegal aspects of their operation may compromise the potential for public–private collaboration, as government authorities cannot openly collaborate with retailers engaged in an illegal activity”.

**Box 2**

**Access to quality health care**

Access to preventive and curative health services has become a much debated issue in international health. A focus on access asks *whether people get the care they need*. Two sets of characteristics are important, namely: 1) those of the individual and household and 2) those of the health care system. Both are affected by health policy and broader social, economic and political forces. Some aspects related to “access” are:

- Accessibility (i.e. ability to reach facilities and obtain services)
- Availability (i.e. actual organisation and provision of services)
- Acceptability (i.e. trust in technology and competence of the provider)
- Affordability (i.e. direct and indirect costs of using the services).

Access in itself is not enough. A closely related question is whether the care people receive is “effective”. This can be assessed by examining two key elements: health care and inter-personal care. The first refers to the application of evidence-based health care which is consistent with the norms established; the second to the negotiation of the agenda of the health care professional and the client.
2.4 The private health sector - pursuing interests within a government-regulated environment

The private health sector has grown rapidly in developing countries [Bennett et al., 1997]. It represents a resource that is available and used even in the poorest countries and among lower income groups.

Figure 1 portrays the universe of private providers who sell medicines. In countries where medicine shops are licensed, they may legally sell proprietary, over-the-counter (OTC) drugs such as analgesics, cough syrups, vitamins, and a variety of antimalarials. These shops also often illegally sell injectable antimalarials, antibiotics, tranquillizers, and other prescription drugs. General provision shops usually do not qualify for a licence to sell even OTC drugs, but they often stock antimalarials and antipyretics and occasionally a limited range of prescription drugs.

People seeking malaria treatment often choose retail drug providers and general stores because they are more accessible than public facilities. A study in rural Tanzania for instance found that there was one retailer stocking drugs for every 310 people, and one antimalarial retailer for every 834 people, compared with one health facility for every 4368 [Goodman et al., 2004]. PSPs have a number of other comparative advantages over the public sector, for instance speed of service, better drug availability and convenience of operating times [Van der Geest, 1987; Snow et al., 1992; Ndyomugenyi et al., 1998; Molyneux et al., 1999]. In addition, prices of PSPs can be considerably lower than those charged in the public sector, and PSPs commonly sell tablets by the unit rather than as complete treatment course. In Sierra Leone, for example, the price of purchased drugs was almost a third of the cost of treatment at a public health centre [Fabricant et al., 1999].

However, the quality of services provided by the highly heterogeneous group of PSPs is variable. There is evidence suggesting that general practitioners often deliver care of questionable technical quality, especially with respect to the quality of diagnosis and use of appropriate drugs [Brugha and Zwi, 1998]. Regarding the performance of private medicine sellers, problem areas include the quality, dosage and appropriateness of drugs sold, the amount, accuracy and quality of information given on how to take the medicines, drug sales to children and the lack of appropriate drug licences [Brieger et al., 2005].

In summary, therefore, although the private sector’s role raises challenges, it also provides opportunities for improving, for instance, malaria treatment, acting as an effective drug distribution channel to remote, rural areas.

Figure 1.
Various types of private providers selling medicines.
Source: RBM, 2005
2.5 The public-private interface

Most private providers receive no guidance from the public sector on diagnosis and treatment [Dartnall et al., 1997], but may get some information from pharmaceutical companies or distributors [Kamat and Nichter, 1997]. In general, state regulation of PSPs, in particular informal PSPs, is problematic, and unregulated markets result in poorer outcomes in terms of efficiency, equity and safety [IHSD, 2004]. Most countries have a regulatory framework and the necessary legislation in place, but these are rarely working well [IHSD, 2004]. Governments have been reluctant to accept that the public sector is providing only a limited proportion of health care, and that private for-profit providers now assume an important role in public health. Recognition of the importance of PSPs by governments needs to be matched by an increase in the capacity to regulate them. With regard to fully qualified PSPs, working with professional bodies on issues such as continuous professional development, recertification, participation in clinical audit and developing clinical protocols is more likely to achieve results than a regulatory framework that is not enforced. Regulation of informal PSPs is difficult due to the sheer number of outlets and to their rapid turnover [Goodman et al., 2004; Marsh et al., 2004].

Consequently, education of selected informal PSPs such as drug shops, linked to consumer education, is likely to have greater impact than trying to implement formal regulation. Government regulatory powers are increasingly complemented by other strategies to reduce transaction costs and protect the public [Bloom and Standing, 2001]. For example, insurance companies and insurance funds now play a role in controlling the cost of services and monitoring the performance of providers, the main motivation being profit maximisation rather than welfare improvements. However, this is of limited use to the vast majority of people who are uninsured [IHSD, 2004].

The emerging question is how policy-makers might best capitalize on the accessibility and popularity of the private sector, and harness its potential to mobilize and inject resources into countries’ health systems. The evidence is limited as to which approaches work best. There have been many references to social marketing, accreditation, franchising and contracting, but much of the experience is documented only in the unpublished literature or has been gained in relatively small projects.

2.6 Health service clients – how do they make their choices?

Consumer behaviour is a critical factor in delivering quality and affordable commodities and services. A large number of factors influences choice of provider, including costs, convenience, availability, perceived quality of service, severity of illness, staff attitudes, gender, age and status of the sick person, as well as more context-specific cultural and intra-household factors.
Payments for healthcare are made at considerable social and economic cost, and are a major factor in household impoverishment. The poorest tend to use cheaper informal and traditional healthcare. Informal providers are often more flexible with payment mechanisms, allowing patients to buy drugs in single doses or giving them credit. In traditional medicine, the patient often negotiates a price with the provider, where the second and final payment is made only if the treatment is perceived to be a success.

Consumers in developing countries often lack knowledge about appropriate means of treating and preventing illness. This translates into low levels of demand for effective disease control measures. They are dependent on providers for information, for example on the interpretation of their symptoms, and this can make them vulnerable to self-interested behaviour by providers. Consumers are usually unable to assess the technical quality of services, with the result that they place more weight on aspects of perceived quality, such as friendliness of providers (which may be unrelated to technical competence). They may, therefore, be more exposed to inadequately qualified practitioners providing care of very poor quality. People with less education also tend to be poorer and/or female, and are more likely to use the traditional or unqualified sector. Use of health care is greatly influenced by gender-based determinants. Women tend to carry the burden of care for children and sick household members, but are often subject to decisions on healthcare by men, senior household members and village elders.

While people may have little control over their selected provider, due to information and other power imbalances, they are certainly proactive in making their provider choice [Akin and Hutchinson, 1999]. The choice of curative health care is often sequential [Nyangongo, 2002; Hill et al., 2003; de Savigny et al., 2004], and patients may attend several types of public and private providers during one disease episode. There is a general trend among care-seekers to find a balance between quality of care and affordability, and to trade off the opportunity costs of their own time against direct costs. Box 3 gives an example from Cameroon.

### Box 3
#### Sequential behaviour patterns in the medical decision-making process: Home case management of acute illness in a rural Cameroonian village

A study on the sequences of health-related behaviours observed in a small, Kom-speaking village in Cameroon found that local residents considered several health actions. Delaying treatment was frequently chosen, and caregivers were more likely to use home-based treatments than to seek treatment elsewhere. When seeking assistance, caregivers often used traditional healers as a conduit to other outside options. Caregivers minimize the cost of care by first resorting to treatments that are less expensive and easier to administer or by reducing the number of treatments tried. And they maximize treatment variety in the hopes of finding at least one treatment that helps stop the illness.


Treatment-seeking behaviour chiefly depends on the local epidemiology of malaria and cultural beliefs about the cause and cure of illness. While severe forms of disease, such as convulsions, are linked with malaria, alternative explanations are also often identified, involving supernatural intervention such as spirit possession or magic spells [Mwesesi et al., 1995; McCombie 1996; Winch et al., 1996; Ahorlu et al., 1997; Nuwaha, 2002]. Alternatively, two parallel explanatory models of disease may coexist side by side, with both traditional and western medical providers consulted in turn. Care-seeking patterns for simple fever or uncomplicated malaria are more likely managed initially at home, while cases with convulsions or severe malaria are more likely to seek care from a health care provider in some contexts [Mwesesi et al., 1995; De Savigny, 2004]. Delays
in treatment seeking are a major concern in malaria, because clinical episodes can progress rapidly to become a severe or fatal disease.

When it comes to malaria prevention with nets or ITNs, it is equally important to understand consumer choice. Many ITN projects or programmes research net preference prior to the intervention, and preferred choices of net size, shape and color are taken into account when purchasing in bulk. In the open commercial market of unsubsidized nets, some nets are of lower quality and durability, but more competitively priced [J. Lines, pers. comm.]. Poorer people tend to choose such nets, which are made either at a local factory or in small enterprises out of netting, (imported second hand) curtains or fabric pieces and sold in the textile markets. There seems to be little awareness of customers to demand insecticide treatment when purchasing a net. However, in Nigeria, ‘bundling’ of commercial nets with retreatment kits has started and this appears to be due to customer demand [NetMark pers. comm.].
3. Tools for effective malaria control

Ambitious new benchmarks for control of malaria have been set through the Millennium Development Goals and the Abuja targets (box 4). Failure to allocate substantial resources to malaria control, to choose the right interventions and the right delivery methods for each intervention will seriously undermine prospects to achieve the MDGs [de Savigny and Binka, 2004]. The following sections focus on two key interventions for effective malaria control: insecticide treated nets and malaria treatment.

**Box 4**

Internationally agreed targets

**Millennium Development Goals for malaria (by 2015)**

- **Target 5**: Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate
- **Target 6**: Reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio
- **Target 8**: Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases
- **Target 17**: In cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries

**Abuja Targets (by 2005)**

- **Target 1**: 60% of those suffering from malaria receive appropriate treatment within 24 hours;
- **Target 2**: 60% of those at risk of malaria, particularly pregnant women and children aged under five years, benefit from the most suitable combination of personal and community protective measures such as ITNs;
- **Target 3**: 60% of all pregnant women have access to chemoprophylaxis or presumptive intermittent treatment.

**Box 5**

Illustrative cost-effectiveness ranges for ITNs

- Insecticide treatment of existing nets (1 annual retreatment): US$ 4–10 per DALY averted
- Insecticide treatment of existing nets (2 annual retreatments): US$ 9–23 per DALY averted
- Provision of nets and 1 annual retreatment: US$ 19–85 per DALY averted
- Provision of nets and 2 annual retreatments: US$ 25–96 per DALY averted

[Hanson et al, 2004]. Note: Values for very low-income sub-Saharan African countries with moderate to high malaria transmission. Insecticide: deltamethrin.

**3.1 Insecticide-treated nets and insecticides**

ITNs are a form of personal protection that has been shown to reduce morbidity and mortality from malaria substantially in over 80 settings [Lengeler, 2005]. Controlled trials of ITNs show that mortality in children under five years of age can be reduced by 17% with high coverage of this intervention. ITNs are a highly cost-effective means of preventing malaria, with cost-effectiveness ranges falling into the ‘attractive’ (cost per Disability Adjusted Life Year, DALY, averted below US$ 150) or ‘highly attractive’ (cost per DALY averted below US$ 25-30) categories (box 5).

**NETS AND RETREATMENT**

The use of a never-treated net gives about half as much protection against malaria morbidity and mortality as the use of an ITN [Clarke et al., 2001, Schellenberg et al., 2001, Lengeler 2005]. The insecticides used for treatment kill mosquitoes on contact, or repel them when entering the room. If high community coverage is achieved, the numbers and longevity of mosquitoes will be reduced and even people not using a bed net will enjoy some protection. The need for frequent retreatment due to net washing is one
of the most difficult barriers to full implementation of ITNs in endemic countries [Hamel et al., 2001; Holtz et al., 2002].

**IMPORTANT NEW ITN TECHNOLOGIES**

‘Dip-it-yourself’ insecticide retreatment kits are increasingly becoming available as a mass market product, and are often ‘bundled’ (packaged) with ITNs, in order to increase the likelihood of net retreatment. A long-lasting treatment formulation, K-O Tab 1-2-3® by Bayer Environmental Science has been found effective on polyester nets in wash trials [Yates et al., 2005].

A key innovation are long-lasting insecticidal nets (LLINs) [Guillet et al., 2001], defined as a net which gives greater than 80% mortality in three-minute exposure bioassays after 20 standardized washes [WHO].

So far there are two LLIN models on the market that are recommended by the WHO Pesticide Testing Scheme (WHOPES):

- **Olyset™** produced in China and Tanzania, made out of wide-meshed high-density polyethylene in which the insecticide (permethrin) is incorporated directly into the fibre (approximate retail price: US$7).
- **PermaNet™**, produced in Vietnam, is a polyester mosquito net, impregnated with deltamethrin during manufacture (approximate retail price: US$4)

Production capacity for both LLIN models cannot keep up with the soaring demand for long-lasting nets. Several insecticide and net manufacturers are active in developing long-lasting net technology. A technology transfer from the Chinese manufacturer to a Tanzanian company has taken place for the production of OlysetTM, within the framework of a PPP supported by the Rockefeller Foundation. Such technology transfer is an important step for the scaling up of LLIN production and increasing market share.

**ITN COVERAGE**

Progress towards large-scale coverage of ITNs in Africa has been slower than in South East Asia and the Western Pacific. The most successful and sustained public sector programmes exist in places such as China and Vietnam, where mosquito net coverage is already very high, so that the government’s role in provision has been largely restricted to offering a regular net treatment service. Retreatment is provided free of charge, and high coverage has been achieved (over 95% in China) [Curtis, 1992].

An analysis of net coverage data of children under five from 26 Sub Saharan African countries (DHS and MICS data from 1999 to 2003) showed net coverage ranging from 1% to 67% (median 15%) [Webster et al., 2005]. ITN coverage was found to be substantially lower than net coverage, only one in seven nets was ever treated. The countries with highest ITN coverage in under fives were all small countries (23% in São Tomé, 14% in The Gambia, 9% in Comoros). In Guinea Bissau, 67% of children were sleeping under a net, but only 7% were sleeping under an ITN.

Several complementary approaches have been developed for scaling-up of ITN interventions using subsidy strategies. These include the targeted distribution of free nets to vulnerable groups such as pregnant women and young children, as part of health services such as immunization. Such approaches are best suited to areas where no commercial market for nets exists. They can prime the market (on the consumer side) over the mid term but are likely to crowd out development of other sources in the short term. Box 6 describes two approaches that illustrate how public and private sector strategies complement each other. A further approach (ITN vouchers provided via health services) is illustrated by the Tanzanian example in the section on social marketing as a PPP.

Costs faced by consumers are a key factor influencing ITN coverage. Nets are relatively expensive items, costing US$ 5-10 or more in many countries. Webster et al. [2005] found that ITN coverage was strongly biased towards richer households in almost all 26 countries analysed, while never-treated net coverage was generally much more equitable, especially in West, Central and Sahelian Africa.

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Box 6
Complementary distribution strategies. Malawi – National ITN Programme for priority groups:

The details of the ‘antenatal model’ for delivering ITNs evolved in 2000/2001 during a pilot in three districts. It took six months to expand the model from three districts to a nationwide programme. Over 200 District Health Management Team staff and 1800 nurses were trained. Whilst green rectangular nets (preferred by rural residents sleeping on mats) are delivered at heavily subsidised prices through the antenatal channel, blue conical nets (preferred by urban residents, predominantly sleeping on beds) are delivered through the private sector channel. Delivery through private and public sector channels greatly improved overall programme efficiency and ensured effective targeting of public subsidy.

The ‘Malawi model’ has delivered over two million nets in the past two years, and the economic cost per ITN delivered has dropped below $2 including commodity cost. Net coverage of under fives had increased from 8% in 2000 to 55% by December 2005. At the time of the 2004 survey, 70% of all nets had been reportedly treated with insecticide during the previous six months. The success of ITN delivery in Malawi is based on coordinated partnership. National guidelines were developed which clearly defined policies regarding target groups, distribution mechanisms and pricing. The Ministry of Health provides leadership and oversees policy formulation and implementation. UNICEF, WHO, USAID, CDC and DFID provide policy input, technical support and/or funding and PSI provides distribution, promotion, accountability and training capacity on the ground and works through existing government infrastructure.


Mozambique – Rural, hard-to-reach populations served by community-based groups

Only 40% of Mozambique’s rural population lives within 20 km of a health facility. To address this gap, ITN sales were introduced in Zambezia Province as an option for community councils (CCs). Their sales complement those at antenatal clinics and through social marketing. The pilot began in two districts in May 2000 and has recently expanded to an additional five. The programme is a collaboration between DFID, UNICEF, World Vision, PSI and the provincial government. World Vision works at the local level through these CCs—formed initially as part of their area development programme (a community capacity-building effort). The CCs consist of volunteers, who undergo several months’ training in participatory methodologies to assess local needs and select priority activities. The CCs are all in remote rural areas, normally 15 km or more from health facilities. UNICEF procures nets and insecticides and delivers these to a PSI warehouse, where they are packaged and stored. World Vision is responsible for collecting the nets and distributing them to the CCs. World Vision also administers the programme at the community level, collects money for nets sold, provides the sales commission to the CCs and oversees all accountability.

However, there was also an association between overall coverage and equity, with equity tending to improve as ITN coverage increases, particularly among countries of Eastern and Southern Africa. Nathan et al. [2004] reported that in the Kilombero Net Project, equity substantially increased over three years, with the ratio of net ownership in the poorest households compared with the least poor at 0.6 in 2000 compared to 0.3 in 1997.

Long distances to reach outlets for mosquito nets affect demand negatively and limit net coverage. Experience has shown that it is relatively easy to sell subsidized nets, but much harder to sell the retreatment, with less than 20% of nets being regularly retreated in most cases [Rowley et al., 1999; Snow et al., 1999]. Interestingly, a study in Tanzania found that 92% of nets sold bundled with insecticide were treated with the insecticide within 12 months [J. Miller, unpublished]. Recent small scale experience in Cameroon and The Gambia suggests that net impregnation campaigns (NICs) can produce a substantial and rapid increase in ITN coverage [Manga et al., 2004].

**ROUTES TO MARKET**

Mosquito nets and the insecticide for retreating them have a number of different characteristics as market commodities. This implies that different mechanisms may be appropriate for their financing, distribution and delivery to end users.

Nets have well established routes to market. They are a well known product which is frequently marketed at open textile markets. In contrast, ITNs may require some ‘market priming’ to establish strong routes to market. Nets are a relatively expensive commodity to stock for small retailers, and handling and storing nets and insecticides can bear risks of theft. They represent a large investment for poor households. High quality nets last for several years (3-5 years, longer for polyethylene nets).

Insecticide for the treatment of nets and other fabrics is a comparatively new product lacking strong routes to market. Its effectiveness is less easily observed and understood by ordinary people. Commercial availability outside projects is as yet limited. Retreatment needs to be done regularly (minimum every 12 months, more often if nets are washed frequently or where transmission is perennial). The costs vary depending on whether retreatment is ‘dip-it-yourself’ or organized at community level. In the long run, if production of LLINs can be scaled up to meet demand, the marketing and distribution of retreatment kits will lose importance. In the meantime, ensuring access to and use of effective, long-lasting retreatment remains a public health priority. The vast majority of nets in use have never been treated and their impact on malaria will double with treatment.

The chemicals for net treatment are a pesticide and must be regulated, and a monitoring system to ensure that effective dosages are being provided may be necessary. Pyrethroid compounds are the only insecticides recommended by WHO [Owolola et al., 2002]. Unfortunately, resistance to pyrethroid insecticides in Anopheles gambiae s.s., the major Afrotropical malaria vector, is becoming a problem in West Africa [Elissa et al., 1993, Chandre et al., 1999, Owolola et al., 2002]. R&D of alternative insecticides is being undertaken in partnership with industry.

**MARKET AND POLICY CONTEXT**

Vigorous commercial net markets exist in many parts of Asia. In most parts of Africa, there is now a significant level of commercial activity regarding mosquito nets, but it is concentrated in urban areas, and coverage in rural areas falls well short of public health targets [Monasch et al., 2004]. Webster et al. [2005] suggest that in Sub Saharan Africa, the vast majority of nets are distributed through the unsubsidized commercial sector, and only a fraction of all nets have been distributed by public health projects, social marketing and other programmes. Commercial supplies and delivery systems are operational, and the poor are reached comparatively well by those channels. Although good documentation is lacking, it seems that particularly West African countries have a well established net manufacturing industry with nets cut and stitched by small scattered enterprises. Compared to the public sector distribution systems, the private sector appears to be much more efficient at distributing and marketing nets.
In any successful scaling up of ITNs, insecticide treatment kits and LLINs, the balance between public and private sector activities will vary between countries, according to local conditions, maturity of commercial markets and strengths of different delivery systems. The public/private balance may be different for nets and for insecticide (box 7). A balance must also be found between sustainability, chiefly provided by the private sector, and equity, which remains an issue that the public sector is expected to address. The market environment is dynamic and governments can help to provide market environments which are favorable to national ITN strategies.

The Abuja target of 60% ITN coverage of high-risk groups in Africa will require some 160 million ITNs, costing about US$ 160 million per year in materials alone. Distribution and handling will cost the same amount again [RBM, 2002]. It is vital to build sustainable systems that harness the private sector interests to the maximum and allow recurrent public expenditure to be focused on the most vulnerable groups to be protected.

Box 7
Mosquito control: public goods and private goods

Public goods have benefits which cannot easily be provided to some and withheld from others. They are therefore subject to ‘market failures’, which means that they are unlikely to be provided by commercial providers in the for profit private sector. Methods that are primarily intended to reduce either the abundance of the local vector population or its overall ability to transmit disease (i.e. its vectorial capacity) have public goods characteristics. This category includes residual house-spraying and all forms of attack on breeding sites, including environmental management and chemical larviciding. Such methods are only effective if they are carried out on a moderately large scale: the minimum area that must be covered depends on the flight range of the local mosquitoes, but is usually at least a few kilometres across. It is hence not normally effective for one family within a village to act alone and in isolation, either to control breeding around the family house or to pay for their own house to be sprayed with residual insecticide. As a result, private markets are unlikely to undertake environmental management or residual house spraying in the socially desired quantities, and community-level cooperation or public intervention is required.

Private goods provide benefits to the individual (personal protection) i.e. untreated bednets, mosquito coils, repellents. Markets will tend to exist for them, but there are concerns over equity, affordability and market failures due to inadequate information.

Importantly, insecticide treated nets have some characteristics of both public and private goods. Treating an untreated net greatly improves the personal protection against biting enjoyed by the net user. Community-wide use of treated nets can also have an overall impact on the vector capacity of the local mosquito population. This ‘mass effect’ benefits both users and non-users [Abdullah et al., 2005]. Treated nets are therefore best described as a private good with a positive externality.

Source: Hanson et al., 2004

Box 8
Key elements for scaling-up of ITNs

1. Efficient use of public funds to guarantee accessibility of ITNs to those most vulnerable;
2. Demand creation for ITNs and quality bundled nets;
3. Strengthened commercial markets providing affordable ITNs to the general public.
Zambia - using a mix of strategies for ITN provision

In 2001, ITN ownership in Zambia was at 17.7%. The country is committed to massively increase coverage by employing a mix of different distribution channels and approaches.

**Commercial marketing** of ITNs is concentrated along the Zambian railway line and benefits from the ITN voucher programme by NetMark. Commercial outlets are supplied with bundled ITNs by local distributors (Ecomed, Melcome Marketing and Cropserve). They hold MOUs with NetMark, which in turn signed MOUs with net and insecticide manufacturers (Syngenta, Bayer, TMTL, BASF and A-Z Textiles). Health facility staff issue vouchers to pregnant women and children under five who can then buy an ITN at a discounted rate at a participating outlet. NetMark reimburses the outlet per vouchers redeemed. About 389,239 ITNs have been distributed by NetMark from 2002 to June 2005. Of these 23% were through the voucher programme, and the rest through the full commercial price. Exxon Mobil, GFATM, National Malaria Control Centre/Central Board of Health, IFRC/UNICEF and USAID/NetMark (including distributors and manufacturers) are the key partners. NetMark is also addressing the transfer of the LLIN technology.

**Social marketing** of subsidised Mama Safenite branded ITNs is carried out through the Society for Family Health/NMCC Malaria in Pregnancy programme in the poorer provinces of Zambia (North-Western, Western, Northern Luapula and Eastern Provinces). The ITNs are sold in antenatal clinics and the returns go into a revolving fund. Financial support is from DFID, NMCC/GFATM and other partners.

**Community based distribution**: The community-based malaria control programme uses community agents to sell ITNs procured by DHMTs from commercial outlets. The community agents obtain a 20% sales commission, and the remainder is remitted to a revolving fund.

**Free ITNs** are distributed through the equity programme (UNICEF and others) to chronically ill and poor people. ITNs have been provided for all health facility beds in the country. The Malaria School Health Programme has provided all boarding schools countrywide with nets (mostly LLINs). British American Tobacco has invested in an employer scheme, where in 2004, they provided at least 3 ITNs and 4 re-treatment kits to each employee. Other private sector institutions such as banks, farming organisations etc. focus mainly on HIV/AIDS.

**Retreatment campaigns for all ITNs** in the community are intensified during Child Health Week activities. In 2004, a NetMark survey in five sites found that 35% of households owned a currently treated ITN (6% in 2000), 17% of children under five slept under an ITN the prior night (2% in 2000) and 14% of pregnant women slept under a currently treated ITN the prior night (1% in 2000).

Source: Country assessment: Zambia [Chanda, 2005]

The case studies highlighted in this review are based on country assessments commissioned by the HLSP Institute as part of this work.
3.2 Antimalarial drugs
The most widely used method of malaria control is the treatment of symptomatic cases with antimalarial drugs. One can distinguish three different forms of treatment: outpatient antimalarial treatment for uncomplicated malaria; inpatient treatment for severe and complicated malaria; self treatment/home treatment by parents or carers. Recommended drug regimens vary regionally, and depend mainly on the parasite species, the pattern of antimalarial drug resistance and the availability of diagnostic and follow-up services.

There are two areas of particular concern in malaria case management: Firstly, the complexity of some treatment regimens, with different antimalarial drugs being administered over several days, and secondly, the frequent need to resort to second-line drugs which may not be easily available. Box 9 shows the highly attractive cost-effectiveness estimates of the two key interventions for improved case management.

Box 9 Illustrative cost-effectiveness ranges for improved case management

- Improved compliance: US$ 2–8 per DALY averted
- Access to 2nd and 3rd line drugs: US$ 1 per DALY averted


PROMPT AND EFFECTIVE TREATMENT
Early detection, confirmed diagnosis and adequate treatment are the cornerstones of chemotherapy of malaria. Treatment in both the public and the private sectors is hampered by three key weaknesses: low quality of care, inefficiency in service delivery and low utilisation of adequate care [Hanson et al., 2004]. The quality of care is partly a function of appropriate diagnosis, a notoriously difficult area of malaria case management. Laboratory tests are scarce, of limited value in endemic areas, and health workers do not always use the results in their treatment choices [Barat et al., 1999]. Developing countries’ public health systems suffer from inefficiencies such as polypharmacy (prescription of additional, unnecessary drugs); use of expensive drug formulations when they are not clinically indicated; drug stock-outs leading to low credibility and reduced labour productivity. Patients’ perceptions of care in the public sector are often negative; complaints about lack of drugs, long waiting times, lack of diagnostic facilities, insensitive staff, illegal charging for consultations and drugs are very widely reported [e.g. Ndymugyenyi et al., 1998].

In the private sector, charges are comparatively high, and technical capacity to manage severe and complicated malaria may be inferior. Quality of care provided by shops may be particularly unsatisfactory, where the wrong drugs, or drugs in inadequate doses are sold to clients lacking information. The fact that private sector shops tend to stock branded products rather than generic drugs results in increased costs for consumers. There is a concern that the sheer number of drug brands on offer may confuse retail staff and consumers [Goodman et al., 2004]. Another concern is the provision of poor-quality drugs, due to lack of quality control in manufacture and degradation during storage [Minzi et al., 2003; Shakoor et al., 1997; Taylor et al., 2001; Dondorp et al., 2004].

DRUG RESISTANCE AND ALTERNATIVE DRUG REGIMENS
The main obstacle to effective malaria treatment is the emergence of drug resistant strains of P. falciparum. Parasite resistance to chloroquine (CQ) and other antimalarial drugs such as sulfadoxine-pyrimethamine (SP) and amodiaquine has increased steadily in recent years in many malaria-endemic countries. This is unfortunate since these drugs are all off-patent, with low prices close to production costs. Multidrug resistance is now common in South America and South-East Asia, necessitating several rounds
of changes in policy in some countries. There is intense international debate about appropriate replacement drugs and how best to deploy them programmatically [White, 1999; Bloland et al. 2000; WHO, 2003]. Combination therapy, the simultaneous use of two or more drugs with independent modes of action, is being promoted as a strategy to improve therapeutic efficacy and delay the development of drug resistance [White 1999; Dorsey et al., 2002; Kindermans et al. 2002; Bloland, 2003].

Artemisinin-based combination therapies (ACTs) that combine an artemisinin derivative with another antimalarial such as lumefantrine or amodiaquine promise both increased efficacy and a reduced rate of development of resistance. The use of artemisinin monotherapy is now officially discouraged by WHO. ACTs may also help reduce malaria transmission, which in low transmission settings would reduce the incidence of malaria (‘positive externalities’). ACTs are generally regarded as a vital component in future chemotherapy of malaria [Bloland et al., 2000], with a range of ACTs shown to be highly effective in treating malaria in areas with high levels of first-line drug resistance [McIntosh and Olliaro, 2005]. At country level, the implementation of ACT is so far limited by, for example difficulties in translating policy commitments into drug forecasting and supply arrangements, and the often underestimated resource implications of changing treatment policies, in addition to drug costs [Njau et al 2005].

MARKET AND POLICY CONTEXT

One of the key considerations for antimalarials is price. For new drugs which are still under patent, prices tend to be well above actual production costs. However, there may be agreements for differential pricing for use by public sectors in malaria endemic countries, as is the case for artemether-lumefantrine (Coartem®). In general, drug prices to the end-consumer can be very different in public and private health sectors. Essential drugs may be far from equity priced [Myhr, 2000], and in some countries, pharmaceutical prices are set to ‘what the market can bear’. Where health systems are not able to provide effective combination therapies, including ACTs at little or no cost, consumers may have to purchase them in the private sector. Private sector marketing may result in unaffordable prices, which may result in use of suboptimal doses, ineffective treatments, partial sales of course-of-treatment packages, poor patient information, increased chances of developing resistance, and perhaps ultimately to increased malaria deaths. There is hence a role for the public sector in ensuring access to and affordability of effective antimalarials, through pharmaceutical regulation, subsidies and other measures.

There are other considerations for the implementation of antimalarial combination therapy. One aspect is the availability of drugs which are components of potential combination regimens (e.g. SP and amodiaquine) as monotherapies. Widespread availability and use of these components as monotherapy may compromise their efficacy within a combined treatment, and this is particularly important if artemisinin becomes widely used as monotherapy [White, 1999]. Another aspect is the complexity of drug regimens for consumers. Dispensers in all sectors often have little or no training on dosage schemes, and the type and duration of treatment may largely be determined by the client’s ability to pay [Marsh et al., 1999, 2004]. If the correct treatment is obtained, complex regimens may result in reduced treatment compliance (it is generally assumed that adherence to antimalarial regimens is inversely proportional to the duration of treatment and the frequency of dosing, although there are few data to support this). Co-formulation of drugs is an urgent need, but so far few co-formulated combinations of novel compounds are approved for use. And even though coformulated, Coartem® is still a complex regimen (4 tablets twice daily for 3 days for an adult). Adherence to loose combination treatments over several days (such as artesunate plus amodiaquine) poses further compliance problems, and are not recommended by WHO. Some combination therapies lack blister packaging to facilitate dispensation and correct consumption of treatment regimens.

In response to growing resistance to CQ, many countries have changed their guidelines for first-line treatment to either ACT or SP. SP costs roughly one-tenth that of ACTs per treatment dose, it is administered as a single treatment, and is approved for use in children and pregnant women. If countries could easily switch between drugs, it may make sense to introduce the cheaper drug (SP) first, and then switch to ACTs before resistance to SP has had much im-
However, malaria-endemic countries find it difficult to modify their malaria treatment policies proactively in response to impending resistance-related morbidity. The costs of each change in treatment policy may be large, involving retraining health workers, dispensers and drug sellers, printing material that explains new dosing regimens, restocking new drugs, and a policy change equally necessitates interventions to influence the extensive provision of drugs through the private sector.

Figure 2 shows that developing countries are increasingly including ACTs into their national malaria treatment guidelines. Arrow et al. [2004] advocate for a global subsidy of ACTs in order to bring the price down to about the price of CQ which is affordable to most consumers. Their report suggests that market penetration of ACT is essential to minimize use of artemisinin monotherapy, maximize the use of ACT as first-line treatment for uncomplicated falciparum malaria, and prevent the emergence of drug resistance.

As the most practicable way to achieve market penetration of ACT, Arrow et al. recommend a large drug subsidy near the top of the distribution chain, which will lower the price to consumers at all points of sale. This global subsidy, above the level of individual countries, will stabilize demand and create incentives for ACT production, resulting in lower prices. The report suggests that, for the subsidy to achieve its goal, ACTs should flow through existing public and private sector channels in participating countries even in remote places. Governments would need to oversee price controls in the private sector in order to assure that the subsidy reaches consumers and that profit margins are not excessive, and regulate the availability of monotherapies. In order to succeed, novel PPP arrangements would have to be established at both the highest international level and the level of individual countries. Managed well, artemisinins could remain the first-line antimalarial for many decades (resistance has not yet developed in Asia, even following extensive monotherapy use).

In 2001, WHO and Novartis signed an agreement to make Coartem® available at cost through WHO for use in the public sector of malaria-endemic developing countries. A country which has been a beneficiary of this agreement is Zambia.
Case study
Zambia - partnerships embraced as a useful tool for introducing ACT

In November 2002, Zambia adopted Coartem® (artemether-lumefantrine) as first-line treatment for uncomplicated malaria, except in children weighing less than 10 kg where SP is being used. The country has formed a partnership with Novartis Pharma Ag, the producer of Coartem®, to implement the new malarial treatment policy. To date, Novartis has provided financial support for various activities including drug forecasting, IEC message development, operational research on outcomes, monitoring of Coartem® safety in pregnancy, and cost effectiveness study on ACTs.

Artemisinin and its derivatives had already been available in the private sector, albeit at high prices. Upon policy change, Coartem® was introduced in three phases covering respectively 7, 28 and 72 districts. The districts where Coartem® was deployed later used SP in the interim. By December 2004, Coartem® was available in all public facilities in the 72 districts. Coartem® is not included in the drug kits, but delivered by the medical stores to the district health offices on a monthly basis. The defence forces and the mission hospitals can obtain the drug at the same price as the MOH, according to the WHO and Novartis terms. Coartem® is currently licensed as a prescription only medicine.

Activities during phase I included quantification of drug needs using the morbidity method, training of health workers, supply of drugs and updated IEC materials and drug efficacy, compliance and safety monitoring. Stocks of Coartem® ran out in all seven districts within three months, and the districts moved on to SP when they ran out of Coartem®. A Coartem® Monthly Stock Return system was developed in order to monitor supplies and facilitate the quantification of needs. A detailed plan was drawn up for withdrawing chloroquine from the health facilities.

Phase II implementation was scheduled to commence after securing funding from GFATM. Presentations on the policy and recommended treatments were made to general practitioners, pharmacists and students of nursing, pharmacy and medicine. All health workers in the country were oriented through a cascade approach. Meetings were held with private sector representatives (pharmaceutical distributors, general practitioners, pharmaceutical society) to discuss private sector participation in the implementation of the policy. Key issues to be resolved with the private sector included access of Coartem® by the public at an affordable price, prevention of ‘leakage’ of public sector drugs to the private sector, and the sustainability of any arrangement.

A study on Coartem® compliance conducted in 5 districts found 64% patient compliance. In phase III, trainings and orientations included also private sector practitioners (general practitioners and pharmacists). It was important to urge the private sector to discontinue the use of chloroquine (reports of chloroquine found in health worker kits were being received as late as October 2004). A drug policy implementation-monitoring plan was developed and six sentinel districts received training on the use of this tool, which is now being implemented in the sentinel districts. The tool focuses on the broad areas of malaria control and will feed into improving the malaria information system.

Microscopy services are only available in 39% of health facilities. During the roll-out of the treatment policy,
RDT capacity was still lacking in the country and cases continued to get treated with Coartem® based on clinical diagnosis. Efforts are being made to improve malaria diagnosis through laboratory trainings and a CHW manual and algorithm for home management of malaria. During RDTs evaluations in a low transmission area, it was found that 80% of clinical cases were misdiagnosed as malaria. It is planned to use rapid diagnostic tests in areas where microscopy is not available.

Zambia has adopted effective but expensive interventions (Coartem®, rapid testing, indoor residual spraying). Scaling up through the public sector alone is curtailed by human resource capacity and funding. A key challenge in Zambia is how to reach the estimated 50% of patients who seek malaria treatment from the private sector. A proposal for a pilot project to determine the feasibility of distributing subsidised Coartem® through the private for-profit sector was developed by NMCC in partnership with SFH, MSH and Novartis. This is intended to expand access to Coartem® at a reduced price through selected private pharmacies and retail outlets. This has not yet been implemented as there are regulatory issues to be clarified such as how to ensure that the public sector Coartem® is not sold at higher prices in the private sector, and branding issues.

Source: Country assessment Zambia [Chanda, 2005]

3.3 Information, education and communication

Successful application of disease control tools such as ITNs and antimalarial treatment chiefly relies on information, education and communication (IEC) activities, which form an integral part of the intervention packages. To maximize levels of awareness, risk perception and knowledge, it is necessary to exploit not only traditional IEC and health education channels, but also mass media and advertising. Communication can be branded or generic, and can be inter-personal or through mass media. Communication interventions must take place on both the demand side (consumers) and the supply side (providers). Most IEC activities have as their aim to change behaviors among a specific target group, such as care seekers, public sector employees, NGO staff, or for-profit PSPs.

Lack of information on the part of consumers severely limits the demand for preventive and curative services. For instance, while in many places there is demand for untreated mosquito nets, there is not yet demand for insecticide retreatment because of lack of knowledge about its effectiveness. Lack of information, combined with the intra-household allocation of power and authority, means
that the household members most in need are sometimes least protected. Nganda et al [2004] demonstrated that individual knowledge of malaria was an important factor for ITN uptake in Tanzania. In Cambodia, a poster and radio education campaign has educated patients to distinguish fake tablets and has helped to drive the sale of counterfeit antimalarials underground [Rozendaal, 2001].

ITNs and retreatment kits urgently need sustained promotion at national and local levels. Wherever people suffer from nuisance biting, the potential for increasing demand is great. Effective demand creation involves all partners – the private sector, the public sector and NGOs. The design of appropriate campaigns, the choice of media and messages should be based on formative research into local perceptions of mosquitoes, malaria and ITNs.

Free markets do not work well when buyers or sellers lack information, or when providers have significantly more information than consumers (‘asymmetric information’). For instance, patients lacking information may purchase inappropriate drugs or consume subtherapeutic doses of antimalarials. They

Box 10

The IMCI strategy in Ghana builds on the partnership approach

Ghana started IMCI implementation in four pilot districts in 2000, and by 2004, 50 districts were implementing IMCI. Several partners are contributing to making IMCI work in Ghana, although they have different areas of focus, including the Ghana Health Service, UN agencies and NGOs. Linkages among partners are ensured through IMCI working groups, the community-IMCI (C-IMCI) subgroup; partners review meetings; NGO Coalition for C-IMCI. At the community level, sub-district health workers link the Community Based Surveillance, TBAs, GW Volunteers and Community Child Growth Promoters, and community durbars bring them together. Community leaders, assembly members and unit committee members bring NGO activities together. The campaign’s brand name, Healthier Happier Homes, or He-Ha-Ho, is used to publicise key IMCI messages in radio and other communication activities, including with the private sector.

There are demonstrable changes as a result of IMCI implementation that relate to service structure and organisation, home and family practices, case management and distribution of health goods at community level. Several lessons have been learnt. They include the need to use a variety of practicing health workers as facilitators and practicing doctors as clinical instructors. Other lessons are that linking up with other programs helps in judicious use of scarce resources; building on existing interventions make things work and identifying each partner’s comparative strength is important in moving things forward.

Scaling up of IMCI is planned and being executed. Pilot districts have budget lines for malaria, diarrhoea and nutritional control measures. Curriculum revision and pre-service training is ongoing. One of the objectives of the IMCI scale up is to strengthen the capacity of the private sector to implement IMCI case management. Training will be provided to private practitioners and key persons of private hospitals, the Nurses and Midwives Council and the Medical and Dental Council. The enabling factors for scaling up include partners’ commitment, Child Health Policy, Community Health Planning and Service draft policy, the priorities in the Programme of Work 2002-2007, the human resource, leadership and enthusiasm of health training institutions and the UNICEF Best Practices.

may pay inflated prices for drugs or spend more on treatment than they would have to. Home treatment of malaria relies in particular on informed consumers. The impact of provision of information was demonstrated in a study in Ethiopia which reported a 40% reduction in under-5 mortality after mothers had received information and antimalarial drugs for the treatment at home of their children [Kidane and Morrow 2000]. Sirima et al [2003] also found that by educating care takers in Burkina Faso, more effective and prompt anti-malarial treatment of child fevers took place at home.

Policy changes on malaria treatment require intensive IEC activities. Consumers are important stakeholders in the process of planning and implementing the training, education and monitoring required for the change of first line treatment. A change of treatment policy requires extensive provision of information to consumers and to public and private providers at all levels of the health system. In Ghana, private providers play an important role in the scaling up of the national programme for the Integrated Management of Childhood Illness, as illustrated in box 10.
4. Strategic options for engaging the private sector in malaria control

4.1 Teaming up for scaling-up
The experience to date demonstrates that partnerships can be a powerful tool in addressing global health inequities and producing tangible benefits for enhanced social welfare. A chief factor encouraging these partnerships is that neither side alone can achieve its specific goals. Partnerships are long term, task oriented relationships with inherent ethical, operational and process-related issues [Nishtar, 2004]. Of particular importance is the challenge of creating value which must be useful to society, rather than beneficial to the partners. Achieving the benefits of PPPs requires not only the good will to make an input such as a drug or vaccine available, but also the capacity to manage effective organizational integration along the entire route from producer to consumer [Reich, 2002].

For effective malaria control at country and sub-regional level, strategic frameworks for implementation through PPPs need to be created. PPPs represent a spectrum of possible relationships between public and private actors, and civil society, for the provision of services. Some activities will essentially be temporary, others must be sustained indefinitely. Some can only be carried out by the public sector, while others are naturally part of the role of NGOs. The relationships between these activities and bodies are illustrated in figure 3, taking the example of a national programme to scale up ITN coverage.

4.2 Strategic options for private sector engagement
The effectiveness of malaria control strategies is driven by consumer and provider behaviour, their interactions, the nature of the commodity or product, and the regulatory and policy context. Efforts to improve the current situation should therefore influence demand and supply directly, or should seek to restructure the overall health care environment.

Countries have to find the balance between general long-term health system development interventions as a foundation for tackling malaria, and malaria specific interventions to provide impetus for achieving the Abuja targets and saving lives [Travis et al., 2004]. Both approaches have merit and may complement each other. For instance, short, malaria-specific training of medicine sellers may yield immediate improvements in treatment for children with fever, while the more complex and slower expansion of the franchising approach may build the momentum necessary to ensure better regulated and quality assured service delivery that is required to achieve sustained improvements in child survival [RBM, 2005].

This section presents the strategic options for working in PPPs for effective malaria control. Most strategies include a combination of demand and supply side approaches (Table 1).
Table 1: Strategic options for effective malaria control

<table>
<thead>
<tr>
<th></th>
<th>Demand side</th>
<th>Supply side</th>
<th>Supply side</th>
<th>Policy level</th>
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<tbody>
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<td></td>
<td>Consumers</td>
<td>Private Providers</td>
<td>Manufacturers/ Distributors/ Wholesalers</td>
<td>Policy Makers</td>
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<td><strong>Aim</strong></td>
<td>Demand creation,</td>
<td>Behaviour change,</td>
<td>Increase supply/competitiveness</td>
<td>Improve service quality,</td>
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<td></td>
<td>Improving access and use</td>
<td>Role change</td>
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<td>Education and protection</td>
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<td><strong>Resourcing</strong></td>
<td>Vouchers</td>
<td>PPAM/ bundling</td>
<td>Provision of machinery</td>
<td>Provide subsidies to</td>
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<td>Labelling</td>
<td>Product branding</td>
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<td>IEC material</td>
<td>Promotion of RDTs</td>
<td>Subsidies</td>
<td>Accessible credits</td>
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<td>Education / information</td>
<td>Peer education &amp; training</td>
<td>Technology transfer</td>
<td>Provision of information</td>
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<td></td>
<td>BCC campaigns</td>
<td>Job aids/BCC materials</td>
<td>Peer education of retailers</td>
<td>to general public on services</td>
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<td>Verbal instructions</td>
<td>Workshops/courses</td>
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<td>PSPs</td>
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<td>franchising**</td>
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<td>pre-packaging</td>
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<td>**Regulation and</td>
<td>Greater awareness of provider</td>
<td>Compliance with standards,</td>
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<td>Licensing of drugs and</td>
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<td>licensing**</td>
<td>standards, quality</td>
<td>etc through legal</td>
<td>regulations etc through</td>
<td>insecticide, reduction of</td>
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<td>brand recognition,</td>
<td>requirements and incentives</td>
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<td>taxes/tariffs</td>
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<td>and education</td>
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Table 1: Strategic options for effective malaria control
These strategies also need to trade off quantity, in terms of achieving high coverage, and quality, in terms of delivering sustainable and effective interventions.

Public sector leadership is required for these strategies to succeed and lead to long-term development benefits. PPPs work best when governments create an enabling environment for the joint efforts to flourish. The PPPs and strategies implemented for scaling up malaria control are illustrated by the case studies in this review from Cambodia, Nigeria, Senegal, Tanzania and Zambia. Each case study demonstrates the importance of achieving an appropriate mix of public and private provision, and an appropriate structure of incentives for providers and consumers.

4.3 Demand side schemes: key strategic options

Relatively few approaches to supporting consumers in their use of PSPs have been tested. Existing approaches tend to have one or more of the following aims: to make services or products more accessible; to increase affordability; and to improve consumer information. There are several key strategic options targeted at consumers which merit a detailed discussion (Table 2). They are listed in the summary table below and presented in detail on the following pages. Pre-packaging of antimalarials and social marketing are presented later in the document as a supply side scheme.

### Table 2: Key strategic options targeted at consumers

<table>
<thead>
<tr>
<th>Option</th>
<th>Strengths</th>
<th>Weaknesses</th>
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<tr>
<td>Vouchers and coupons</td>
<td>• Allow targeting subsidy to high-risk, vulnerable and hard-to-reach groups</td>
<td>• Difficulty to delineate economically vulnerable groups</td>
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<td></td>
<td>• Ease of transport as compared to nets</td>
<td>• Expensive to set-up, complex chain of transactions</td>
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<td></td>
<td>• Improve access and equity of ITNs and retreatment</td>
<td>• Low value voucher has weak impact</td>
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<tr>
<td></td>
<td>• Can accelerate increase of ITN coverage</td>
<td>• Problem of undesired screening of target group</td>
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<td></td>
<td>• Stimulate growth of commercial sector supply and avoid crowding out of commercial supply</td>
<td>• Risk of misappropriation</td>
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<td></td>
<td>• Limit handling of cash, commodities by personnel and hence risks/fraud</td>
<td>• Redemption may be limited to few outlets and to factory made nets</td>
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<td></td>
<td></td>
<td>• Informal sector distribution systems mostly not linked in</td>
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<tr>
<td>Packaging inserts</td>
<td>• Improve adherence to correct dosing regimen</td>
<td>• Limited usefulness in societies with high illiteracy</td>
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<td></td>
<td>• Inserts represent minor added expense for producers, cheaper than PPAM</td>
<td>• Pictorial inserts may be hard to read</td>
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<tr>
<td>IEC material</td>
<td>• Multiple forms (posters, leaflets, etc) and uses (client awareness, protection, knowledge, etc)</td>
<td>• Messages require grounding in research and evidence</td>
</tr>
<tr>
<td></td>
<td>• Reach hard-to-reach areas</td>
<td>• Message may need to be specific to population sub-groups</td>
</tr>
<tr>
<td></td>
<td>• Carry generic and branded messages</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Targeting misconceptions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Important part of SM</td>
<td></td>
</tr>
<tr>
<td>Verbal instructions</td>
<td>• Powerful tool to improve case management</td>
<td>• Frequently not valued by health workers</td>
</tr>
<tr>
<td></td>
<td>• Carers are receptive to instructions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Important element of perceived quality of care</td>
<td></td>
</tr>
<tr>
<td>Collective purchasing (through household contribution to insurance schemes)</td>
<td>• Reduce financial risk of illness to households</td>
<td>• Most schemes very small in scale, may suffer from adverse selection</td>
</tr>
<tr>
<td></td>
<td>• Increase access to health care by those who might not be able to pay user fees</td>
<td>• Not suitable for societies where people informally employed or unemployed, community based insurance schemes often face sustainability challenges</td>
</tr>
<tr>
<td></td>
<td>• Membership voluntary</td>
<td>• Premiums may be according to ability to pay</td>
</tr>
<tr>
<td></td>
<td>• Premiums may be according to ability to pay</td>
<td>• Scheme may retain all funds</td>
</tr>
<tr>
<td></td>
<td>• Scheme may retain all funds</td>
<td></td>
</tr>
</tbody>
</table>

These strategies also need to trade off quantity, in terms of achieving high coverage, and quality, in terms of delivering sustainable and effective interventions.

Public sector leadership is required for these strategies to succeed and lead to long-term development benefits. PPPs work best when governments create an enabling environment for the joint efforts to flourish. The PPPs and strategies implemented for scaling up malaria control are illustrated by the case studies in this review from Cambodia, Nigeria, Senegal, Tanzania and Zambia. Each case study demonstrates the importance of achieving an appropriate mix of public and private provision, and an appropriate structure of incentives for providers and consumers.

### 4.3 Demand side schemes: key strategic options

Relatively few approaches to supporting consumers in their use of PSPs have been tested. Existing approaches tend to have one or more of the following aims: to make services or products more accessible; to increase affordability; and to improve consumer information. There are several key strategic options targeted at consumers which merit a detailed discussion (Table 2). They are listed in the summary table below and presented in detail on the following pages. Pre-packaging of antimalarials and social marketing are presented later in the document as a supply side scheme.

### Table 2: Key strategic options targeted at consumers

<table>
<thead>
<tr>
<th>Option</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vouchers and coupons</td>
<td>• Allow targeting subsidy to high-risk, vulnerable and hard-to-reach groups</td>
<td>• Difficulty to delineate economically vulnerable groups</td>
</tr>
<tr>
<td></td>
<td>• Ease of transport as compared to nets</td>
<td>• Expensive to set-up, complex chain of transactions</td>
</tr>
<tr>
<td></td>
<td>• Improve access and equity of ITNs and retreatment</td>
<td>• Low value voucher has weak impact</td>
</tr>
<tr>
<td></td>
<td>• Can accelerate increase of ITN coverage</td>
<td>• Problem of undesired screening of target group</td>
</tr>
<tr>
<td></td>
<td>• Stimulate growth of commercial sector supply and avoid crowding out of commercial supply</td>
<td>• Risk of misappropriation</td>
</tr>
<tr>
<td></td>
<td>• Limit handling of cash, commodities by personnel and hence risks/fraud</td>
<td>• Redemption may be limited to few outlets and to factory made nets</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Informal sector distribution systems mostly not linked in</td>
</tr>
<tr>
<td>Packaging inserts</td>
<td>• Improve adherence to correct dosing regimen</td>
<td>• Limited usefulness in societies with high illiteracy</td>
</tr>
<tr>
<td></td>
<td>• Inserts represent minor added expense for producers, cheaper than PPAM</td>
<td>• Pictorial inserts may be hard to read</td>
</tr>
<tr>
<td>IEC material</td>
<td>• Multiple forms (posters, leaflets, etc) and uses (client awareness, protection, knowledge, etc)</td>
<td>• Messages require grounding in research and evidence</td>
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<td></td>
</tr>
</tbody>
</table>
VOUCHERS AND COUPONS

Vouchers and discount coupons are a promising strategy to improve access to ITNs and to stimulate growth of a competitive supply. They enable a financial subsidy to be directly targeted at selected groups. Biologically vulnerable target groups mainly comprise pregnant women and young children, and sometimes people living or working in at-risk areas. Economically vulnerable target groups are difficult to delineate, but may be rural people, members of an ethnic group or refugees. Vouchers are usually used for targeting subsidies on ITN purchases, and less commonly to promote retreatment services for ITNs.4

Early ITN project data from Tanzania suggest that affordability remains a significant obstacle to net use, especially for the poorest. Recent data confirm a socio-economically stratified gradient in treated and untreated net ownership and re-treatment rates [Nathan et al., 2004; NetMark 2005, Webster et al., 2005], although this gap is narrowing over time as overall levels of coverage increase. Vouchers are a tool to rapidly increase coverage in the lower socio-economic quintiles and harder-to-reach rural areas. Within voucher schemes, the value of the subsidy ranges from 20-80%, often depending on the value of the product selected by each individual [Worrall et al., 2005]. LLINs are increasingly included in voucher schemes. The Tanzanian voucher pilot and national scheme gives free retreatment kits to the target group. In voucher schemes where the private sector plays a key part, they may also be involved in planning and, to some extent, financing promotional and advertising initiatives.

Vouchers are most often distributed by health facilities. Intensive health worker training is especially important to avoid ‘screening’ and misappropriation of both vouchers and goods (screening has occurred in some

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4There is a body of recent literature on the important subject of targeted subsidies for ITNs [RBM, 2002; RBM/WHO, 2004; Stevens et al., 2005; Worrall et al., 2005; see annotated bibliography].

5NetMark ITN Surveys of 2000 and 2004 (http://www.netmarkafrica.org/Countries/).
Consumer education

A key element of successful malaria control is demand creation, particularly in priority target groups. Consumer education is one strategy to shape demand. Consumer education has also been found to be a cost-effective way to improve retail quality [Battersby et al. 2003]. In many malaria interventions, consumer education or information forms an integral part, or is a complementary measure to maximize impact. Education may happen on a one-to-one basis or in groups, or through mass media and video clips. Most education efforts are generic, they promote a product group such as ITNs, and the message contents may want to alter risk perception in the target group and precipitate behaviour change. So-called branded messages promote a specific product or products from a certain manufacturer or distributor. ITN manufacturers increasingly promote their products, indicating the growing commercial sector interest in the ITN market.

Packing inserts

Labeling of pharmaceuticals, malaria drugs included, is inadequate in many malaria-endemic settings. When drugs are accompanied by printed information, the information is often written in complicated or technical language, or, in some cases, a language entirely unknown to the consumer. And in many cases, the printed information is of no use because the consumer is non-literate. Difficulties in reading antimalarial instructions are well documented [Ansah et al., 2001; Okonkwo et al., 2001; TDR/RBM, 2002]. Consumers can only use antimalarials correctly if they receive appropriate written and graphic labeling which accompanies the drug.

Clear and informative labelling is a minor added expense for producers, and yields an excellent return on investment. In a three-armed Nigerian study of antimalarial treatment with chloroquine syrup, the addition of a pictorial insert plus good verbal instructions doubled adherence with the correct dosing regimen [Okonkwo et al., 2001]. The pictorial insert added only US$ 0.01 per patient to the base cost of US$ 0.30 for the syrup. Pre-packaging of antimalarials is an important step towards correct use of medication and improved compliance.

IEC material

Production and distribution of IEC material targeting consumers has been widely used. This can be in the form of client awareness posters in outlets, for instance displaying treatment regimens (e.g. Bungoma intervention, Tavrow and Rennie, 2003) or ITN retreatment (e.g. KINET intervention, Schellenberg et al., 2001), or leaflets for consumers on the appropriate use of ITNs (e.g. malaria control in a complex emergency in East Timor, Kolaczinski and Webster, 2003).
PARTNERSHIPS FOR MALARIA CONTROL: ENGAGING THE FORMAL AND INFORMAL PRIVATE SECTORS – TDR/GEN/06.1

VERBAL INSTRUCTIONS

Verbal instructions to consumers are important in appropriate ITN use and retreatment, and essential in malaria case management. However, they are often inadequate. In Zambia, many children suffering from malaria did not receive the appropriate 3-day course of CQ because their caregivers did not receive adequate instruction on how to administer the drug [Baume et al., 2000]. In Uganda, 38% of children seeking treatment for fever received CQ in compliance with instructions given by health workers or drug shop attendants [Nshakira et al., 2002]. Obviously, consumers can only use antimalarials correctly if they receive a clear and full explanation from a health care provider or drug seller.

If the availability of effective antimalarials increased in rural African communities along with stakeholder education, many experts believe that residents could use drugs effectively. One community-based intervention in northern Ethiopia in which mother coordinators provided home treatment reduced under five malaria mortality by 40% [Kidane and Morrow, 2000]. A smaller study in Guinea Bissau found similar treatment outcomes and day 7 CQ blood levels in children with symptomatic malaria whose treatment was either supervised in a health center or given at home following adequate caregiver education by health staff [Kofoed et al., 2003]. Training mothers to treat childhood fevers with antimalarial drugs has been successful in several African countries, one example comes from Uganda (Box 13).

INSURANCE SCHEMES

Insurance and other risk pooling schemes have evolved in order to reduce the financial risk of illness and increase the value for money of household expenditure on health, by pooling risks through household contributions to the insurance fund, and enabling the collective purchase of goods and services from providers which are accredited and/or contracted by the fund managers.

There is limited experience on the use and benefits of health insurance by poor people in developing countries[6]. Experience from an insurance scheme in Zambia showed uptake mainly in urban areas, and members expressed a clear preference of insurance payments over user fees [Van der Geest et al., 2000]. However, both types of payments were only acceptable if drugs were in turn available at the health facility. If drugs are out of stock, there is a danger that people can only afford part of a drug treat-

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Box 13

The Uganda Malaria Partnership Programme supported by GlaxoSmithKline

Four NGOs (AMREF/Uganda, Uganda Red Cross Society, Africare Uganda and the Communication for Development Foundation/Uganda) have teamed up with the MOH to promote home-based management of fever under a three-year initiative, the Uganda Malaria Partnership Programme, supported by GlaxoSmithKline. The program teaches mothers to identify the signs and symptoms of malaria and provides them with easy access to PPAM and other appropriate drugs through volunteer drug distributors who refer children to health facilities when indicated. The programme reaches an estimated 163,000 children under five. In addition, the initiative promotes IPT for pregnant women and the use of ITNs as part of Uganda’s comprehensive malaria control policy. Uganda became the first country to implement a large-scale program for home-based management of malarial fever in spring 2002. A 2004 assessment of the three districts involved in the Programme, conducted by Uganda’s MOH, WHO and BASICS II, found that “the odds of receiving appropriate treatment for fever are nearly five times greater in intervention districts than in control districts.”

Source: CORE Group and MIHV, 2005; GlaxoSmithKline website.

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ment course in the private sector, and that these drugs are not only ineffective, but also promote drug resistance.

In a community-based health insurance scheme in Gujarat, India, malaria was the second most important cause for claims [Ranson, 2002], and the experience showed that such schemes can include poor people, including people and households below the poverty line. An interesting observation comes from a study in Egypt, where a school health insurance programme resulted in larger increases in insurance coverage in poor people than in those who were better off, as well as having a larger effect on use of services in poor communities [Yip and Berman, 2001].

Although not a pre-payment scheme, the Bamako Initiative (BI) is a well-accepted approach to generating financial contributions to, and community involvement in, primary health care, aiming at improved service utilization, equity, coverage and accessibility to key PHC interventions. These types of strategy promote the idea that viable financing mechanisms can be reached through cost recovery and drug revolving funds. The BI either establishes community drug shops, run by community health workers (CHWs) and community representatives, or works through dispensaries and their management committee (composed of representatives of the population). Drugs are sold at a small profit, in order to generate funds to run the scheme.

Reviews of the BI show that price structures need to consider more the access of poor and marginalised groups, that over-prescription of drugs is a problem, and that incentives for utilising most appropriate levels of care need to be maintained [McPake et al., 1993]. A more recent study found that BI programmes in Guinea and Benin succeeded in raising preventive and curative coverage with key primary health care interventions, while keeping the costs affordable. Although inequities were more apparent in use of curative care, the poor were found to use these health centres relatively more than richer socio-economic groups [Soucat A et al., 1997].
### 4.4 Supply side schemes: key strategic options

**Table 3: Key strategic options targeted at the supply side**

<table>
<thead>
<tr>
<th>Option</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-packaging and supply of anti-malarials</td>
<td>• Improves case management by PSPs, carers</td>
<td>• Risk of abuse e.g. sale of individual tablets</td>
</tr>
<tr>
<td></td>
<td>• Improves adherence to treatment and cure rates</td>
<td>• Increases drug costs</td>
</tr>
<tr>
<td></td>
<td>• Can be linked to PSP training intervention</td>
<td>• Requires several formulations for children and adults</td>
</tr>
<tr>
<td></td>
<td>• Can be linked to branding, social marketing</td>
<td>• Works better if integrated in home-based malaria management intervention</td>
</tr>
<tr>
<td>Product Branding</td>
<td>• Communicates messages of quality and appropriateness</td>
<td>• Brand name and product strategy requires formative research</td>
</tr>
<tr>
<td></td>
<td>• Provides actors with a sense of common identity</td>
<td>• Brand name may not be appropriate for use outside the area</td>
</tr>
<tr>
<td></td>
<td>• ‘A promise of continuity’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Can be linked to PPM, SM</td>
<td></td>
</tr>
<tr>
<td>Supply of Rapid Diagnostic Tests</td>
<td>• Useful in low endemicity areas</td>
<td>• Not useful in highly endemic areas</td>
</tr>
<tr>
<td></td>
<td>• Does not require laboratory</td>
<td>• Requires good storage</td>
</tr>
<tr>
<td></td>
<td>• Start to get integrated into routine practice in NMCPs</td>
<td>• More expensive than microscopy</td>
</tr>
<tr>
<td></td>
<td>• Private sector distribution works, can be linked to SM</td>
<td>• Require monitoring systems for RDT products and test performance</td>
</tr>
<tr>
<td></td>
<td>• For prevalence surveys</td>
<td>• Providers may not treat according to test result</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Risk of misuse of test</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Risk of misinterpretation of result</td>
</tr>
<tr>
<td>Peer education and Training</td>
<td>• Improves dispensing practice of PSPs</td>
<td>• Gap between changing knowledge and changing practice</td>
</tr>
<tr>
<td></td>
<td>• Various training forms</td>
<td>• Impact enhanced of complemented with demand side interventions</td>
</tr>
<tr>
<td></td>
<td>• Can be provided by MOH staff or by peers (wholesalers, vendors)</td>
<td>• High turnover of trained shop assistants</td>
</tr>
<tr>
<td></td>
<td>• Can use existing communication channels</td>
<td>• Trained shop owner not present in shop to serve clients</td>
</tr>
<tr>
<td></td>
<td>• Useful for communicating new treatment guidelines</td>
<td></td>
</tr>
<tr>
<td>Social Marketing</td>
<td>• Harnesses commercial channels and techniques for social aim</td>
<td>• Some subsidy lost to people who could afford full price</td>
</tr>
<tr>
<td></td>
<td>• Supports development of sustainable commercial markets</td>
<td>• Poorest groups benefit little if subsidy not targeted</td>
</tr>
<tr>
<td></td>
<td>• Reaches hard-to-reach areas</td>
<td>• More costly than a pure commercial sector approach</td>
</tr>
<tr>
<td></td>
<td>• Some cost recovery</td>
<td>• Can lead to a degree of ‘crowding out’ of the private commercial sector</td>
</tr>
<tr>
<td></td>
<td>• Displaces poor quality, overpriced products from commercial sector</td>
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<tr>
<td></td>
<td>• Increases affordability through subsidy</td>
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</tr>
<tr>
<td></td>
<td>• Motivates high-risk people to adopt healthier behaviour</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Can be linked to voucher schemes</td>
<td></td>
</tr>
<tr>
<td>Social Franchising and Accreditation Networks</td>
<td>• Uses investment capital from franchise owners</td>
<td>• Only self-financing if number of outlets large</td>
</tr>
<tr>
<td></td>
<td>• Improves sellers performance</td>
<td>• Relatively slow scaling up</td>
</tr>
<tr>
<td></td>
<td>• High efficiency through central supplies, scale and standardisation</td>
<td>• Much investment into training, controls, supply systems, micro-credit support and creation of franchise identity</td>
</tr>
<tr>
<td></td>
<td>• Lower retail prices due to economies of scale in purchasing</td>
<td>• Conducted in isolation from government</td>
</tr>
<tr>
<td></td>
<td>• Promising tool for distribution of essential drugs in rural areas and to</td>
<td></td>
</tr>
<tr>
<td></td>
<td>poor (but small scale to date)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Franchise operators work hard with low level of supervision</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Turns medicine sellers into active health care providers incl. prevention, IMCI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• High consistence of quality through franchise systems and controls</td>
<td></td>
</tr>
</tbody>
</table>
Interventions targeted at the supply side concern private sector providers (PSPs) on one side and manufacturers, distributors and wholesalers on the other side. A summary of the key strategic options is given on page 34.

Schemes involving PSPs focus on two levels: behaviour change and role change [Brieger et al., 2005]. Behavior change interventions focus on improved sales practices. Role change interventions train medicine sellers to be active health care providers, for instance as franchisees. 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. In contrast, 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. Detailed information on interventions to improve the role of medicine sellers in malaria case management is available in the review by Brieger et al [2005].

At the heart of all markets are commodity distribution chains which make the link between production and consumption. The structure of the commodity distribution chain varies in different countries, but in general extends from manufacturer/importer, to one or more distributors, to wholesalers and retailers. Sustainable distribution can usually be developed through the normal trading system for ‘fast moving commodity goods’ that now has substantial penetration in most economies.

Where local manufacturers meet international quality and cost standards, procuring products from them is attractive. Import duties and transport costs are reduced, and resulting cost savings can be passed on to consumers in the form of lower prices. Local manufacturing is viable where products are simple to manufacture to minimum standards, where economies of scale can be achieved at relatively low volumes, where the local business and investment environment is favourable, and for which local companies perceive a profitable market.

There should be increased opportunities for innovations in working with domestic manufacturers and pharmaceutical companies, given that many of the pharmaceutical products of interest to health programmes are no longer on patent, and given the fact that domestic manufacturers’ capacity to produce such products in many countries has been steadily increasing. Manufacturers can also leverage additional investment and employment. For example, US$4.5 million and 500 jobs have been generated through the manufacture of nets in Tanzania.

**PRE-PACKAGED ANTIMALARIAL DRUGS**

One approach to enhance providers’ contribution to malaria control is to equip them with pre-packaged antimalarial drugs (PPAM). The introduction of pre-packed, unit-dosed malaria treatment is currently one of the most promising approaches to improvement of case management and is promoted by RBM for wide application in disease endemic countries, particularly within the context of HBM.

**Box 14 PPAM in Burkina Faso**

Burkina Faso is among several countries which have tested and introduced pre-packaged antimalarial drugs (PPAM) and trained health staff, drug store managers, community health workers and village opinion leaders [Sirima et al., 2003]. CHWs were provided with a seed stock of PPAM free of charge, which they sold to mothers at a price previously agreed with the local health management team. The price had been calculated to allow for full recovery of the drugs’ purchase costs, for a 10% incentive margin for the CHW and, in some cases, for an incentive for the drug store manager in charge of packaging the drugs.

It was found that the risk of developing severe malaria was more than double in children not treated with PPAM.
Availability of PPAM in the private sector is ideally accompanied by demand side interventions on home-based malaria management. With PPAM strategies, monitoring systems are required in order to minimize abuse, such as the sale of individual tablets at higher unit cost by street vendors. Countries with ACT as first-line treatment might refrain from distributing pre-packaged ACT through private providers, until carefully conducted pilot studies on the effectiveness of ACT and the appropriate distribution systems have been addressed [D’Alessandro, 2005].

**BUNDLING OF NETS AND INSECTICIDE**

In malaria prevention, a similar principle of packaging two components is being used: ITNs are increasingly ‘bundled’ with retreatment kits in order to reduce the barrier to ITN retreatment. In Tanzania, it has become compulsory for domestic net manufacturers to ‘bundle’ nets with retreatment kits.

**PRODUCT BRANDING**

For several PPAM products, the strategy of product branding has been employed, and the same applies to ITNs and retreatment kits. Branding is seen as an important way of communicating messages of quality and appropriateness to the public, and can provide participating actors such as franchisees with a sense of common identity. In Cambodia, pre-packaging and branding has been used in the early introduction of ACT in partnership with EC Malaria Control Project, WHO, World Bank, PSI and GFATM.

**RAPID DIAGNOSTIC TESTS**

Rapid Diagnostic Tests (RDTs) assist in the diagnosis of malaria by detecting malaria antigen in the blood. The usefulness of RDTs in highly endemic areas is being evaluated, since a large proportion of the population is infected with malaria parasites but not made ill by these parasites. Furthermore, there is evidence that health care providers continue to prescribe antimalarial treatment even if the malaria test result is negative [Reyburn et al., 2004]. There is hence still some uncertainty as to the place and importance of RDTs in the health systems of endemic countries.

In most remote endemic areas, storage at temperatures above 30°C will be unavoidable and this should be taken into account when choosing RDT products. The recommended storage temperature of RDTs is usually between 2°C and 30°C (expiry dates are generally set according to these conditions). RDTs stored at temperatures exceeding the recommended limits are likely to have a reduced shelf-life [WHO, 2003, page 38].

Rapid Diagnostic Tests have been used on a large scale in the public sector in parts of South America, Southern Africa and South-East Asia. This has predominantly involved areas without microscopy services, and they have been used successfully for prevalence surveys. RDTs have now been integrated into routine practice in several national malaria control programmes (e.g. Thailand, Cambodia, South Africa). However, many countries lack mechanisms to monitor RDT accuracy or determine where problems causing loss of sensitivity lie.

In some areas, there is potential for expanding the use of RDTs in the private health sector, and public health services have cooperated with the private sector in supplying and distributing RDTs [Cunha et al., 2001]. Private sector use presents opportunities to increase the availability of accurate diagnosis, but also furthers problems for maintenance of diagnostic quality. Quality of both RDT products and test performance will be difficult to monitor in this sector. Private-sector distribution of RDTs in some countries, such as Guyana and Cambodia, appears to be successful, but anecdotal reports from Asia indicate that misuse of tests and misinterpretation of results may be
Public health authorities should take steps to disseminate knowledge on correct care and use of RDTs to providers and consumers in the private sector. The WHO Guide on the use of malaria rapid diagnostic tests gives further information\(^7\) (see WHO 2004, annotated bibliography).

\(^7\)A list of commercially available antigen-detecting malaria RDTs is available at http://www.wpro.who.int/rdt/.

Case study
Cambodia - multi-pronged malaria control approaches through growing public-private partnerships

In Cambodia, the development and implementation of a malaria treatment policy have for several years been a particular challenge because of multidrug resistance, the limited national resources for health and the important role played by the largely unregulated private sector. The NMCP has succeeded in updating the treatment policy on the basis of regularly collected efficacy data and new drug availability. The latest guidelines were issued in November 2004, recommending for uncomplicated \textit{P. falciparum} malaria a combination of artesunate and mefloquine (A+M) as first-line, and a combination of quinine and tetracycline as second line treatment. Rectal artesunate, especially for children in remote areas, has been introduced.

The private sector—particularly drug sellers—are the first point of contact for the majority of people when they are ill, and 75% of legal antimalarials are sold through the private sector. The private sector is largely unregulated for price and quality. More than 100 brands and forms of antimalarials are found in Cambodia’s private sector outlets, where patients receive treatment based on their ability to pay. The illegal drug market is supplied largely by pharmaceuticals smuggled across the border from neighbouring countries, sold by several thousand illegal drug sellers nationwide. In Phnom Penh, there are an estimated 495 illegal drug sellers, compared with 298 registered pharmacies and drug sellers.

The European Commission-Cambodia Malaria Control pilot project evaluating village-based early diagnosis and treatment (EDAT) provided by volunteers using RDTs and combination therapy, was initiated in 2001 in 47 communities. The project was a great success and a decision was made to incorporate the strategy into the national plan and expand activities to all eligible communities. Findings from pilot studies in Ratanakiri and Koh Kong Provinces showed that these activities greatly reduce the average time taken by people to access health care and lead to a dramatic increase in the numbers of people receiving appropriate treatment for malaria. Within a year and half of time after the commencement of the Round 2 GFATM support, the National Center for Parasitology, Entomology & Malaria Control (CNM) has been able to scale up this volunteer network to cover 300 hyperendemic villages in Cambodia.

Pre-packaged combination therapy of artesunate and mefloquine has been developed for public sector use (A+M) and for social marketing by PSI (Malarine\(^8\)). The blister packaging of both products is done by Cambodian Pharmaceutical Enterprise with support from WHO. A+M, when first introduced as the first-line drug in 1999, was recommended to be used upon diagnosis by either microscopy or rapid dipstick test. Dipsticks are currently marketed by PSI as Malacheck\(^8\).

\(^8\)Pre-packaged combination therapy of artesunate and mefloquine has been developed for public sector use (A+M) and for social marketing by PSI (Malarine\(^8\)).
The NMCP pioneered a three-pronged innovative public-private mixed approach involving:

1. conventional public sector channels;
2. EDAT delivered through community based Village Malaria Worker; and
3. socially marketed products (Malacheck® and Malarine®) distributed through the private sector (initially piloted by CNM, with ECMCP support and subsequently handed over to PSI who have continued scaling it up with GFATM Round 2 support).

This strategy increases access to affordable and effective EDAT for malaria throughout the country by making dipstick diagnosis and pre-packaged combination therapy widely available through social marketing and distributing branded products via the private commercial sector as well as NGO networks. The National Center for Parasitology, Entomology and Malaria Control has the mandate to ensure that the strategy is in accordance with the national treatment guidelines, which are updated at two-year intervals, based on the results of drug resistance monitoring and cost-effectiveness studies. WHO/USAID have committed themselves to support monitoring of drug resistance and drug usage over the next five years.

The GTZ BACKUP Initiative has been instrumental in implementing a pilot project to establish a standardized, comprehensive and sustainable private sector malaria information collection strategy to support effective planning and implementation of interventions. The project demonstrated that the approach adopted by CNM in working with the private providers has worked well in four pilot provinces. The 199 trained PSPs filled and maintained the registers provided to them. A highly satisfactory finding was that either microscopic diagnosis (50.2%) or RDT diagnosis (40.2%) was being carried out by the PSPs. In 2005, the Society for Malaria Control in Cambodia (SMCC), has taken over the implementation of this project and CNM will scale up the intervention from 4 to 12 provinces. This effort may, in conjunction with others (drug quality assurance, social marketing of diagnostic dipsticks and ACTs), lead to substantial improvements in the diagnosis and treatment practices of PSPs.

The policy and strategy framework of malaria control in Cambodia is clearly in favour of promotion of partnerships between public and private sectors. The RBM initiative provided the initial stimulus for coordination and partnership development, and the arrival of GFATM support has strengthened existing and created new partnerships, including those with Health Unlimited and Partners For Development. The country has formulated policies and guidelines based on evidence, and has brought innovation into malaria control, being one of the first countries to initiate use of diagnostic dipsticks, prepackaged combination therapy and ITNs on a large scale.

Source: Country assessment: Cambodia [Babu and Socheat, 2005].
**PEER EDUCATION AND TRAINING**

Improving practitioners’ knowledge is a commonly used strategy to improve case management behaviour. It can take various forms, such as the dissemination of clinical guidelines, training sessions, small group meetings, and one-to-one detailing. Few systematic evaluations of the impact of such interventions exist. A common observation in several training interventions was that closing the gap between changing knowledge and changing practice among providers is a challenge. Several models for changing shopkeeper dispensing behaviours have been employed. One example of an educational intervention is the Kilifi Shopkeeper Training Programme in Kenya.

Another strategy of educating providers has been used in Bungoma District, Kenya, using peer-educators to improve medicine seller performance. This vendor-to-vendor programme combined the strategies of persuasion and customized information to achieve improved knowledge and dispensing practices among private retailers. Wholesalers were designated as the ‘persuaders’ since they were found to play a key role in influencing drug purchasing and prescribing practices. Mobile vendors turned out to be more enthusiastic distributors of the job aids than the wholesale attendants, largely because being involved in the programme apparently heightened their status. Also, since they were not facing queues of retailers, communicating the guidelines was more feasible for mobile vendors. The vendor-to-vendor model can be considered ‘high quantity’ (wide coverage) and ‘moderate quality’ (significant but limited improvements) at low cost (about $40 per wholesale outlet reached – including mobile vendors – and about $9–11 per retail outlet reached).

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**Box 16
The Kilifi Shopkeeper Training Programme**

The programme is targeting drug retailers in general shops and the community in a rural area within Kilifi District, Kenya [Marsh et al., 1999, 2004]. A pilot study demonstrated that training of shopkeepers from general shops that also sold drugs by MOH personnel could improve the delivery of appropriate drugs for malaria. A series of three, 3-day workshops changed shopkeepers from simply dispensing antimalarials to giving advice on the types and quantities of drugs to buy, as well as counseling on how to use the drugs at home. They asked questions about the age of the child and the symptoms during the majority of drug sales. The percentage of shopkeepers providing an adequate dose of CQ significantly increased and significant reductions were observed for underdosing as well as for overdosing with CQ. Subsequently, retailers from 259 shops were trained on causes and signs of malaria, types of antimalarial and antipyretic drugs, indicators of referral, and basic communication skills. This intervention covered the period during a change in first-line drug treatment to SP and provided support to the change by promoting uptake of the new drug by retailers. The training was over four days with an annual one-day follow-up. A community information component was used to create awareness of the program, identify trained retailers, and highlight the importance of early treatment.

Results showed an increase in adequate doses of antimalarials from less than 5% to over 30% [Marsh et al., 2004]. The Kilifi training is currently being scaled-up by the Kenyan Ministry of Health, DHMTs, and the Kenyan Medical Research Institute from one to an additional six districts over the period 2002–2005. All districts in two provinces were granted funds through their district malaria business plans to support retailer training based on the same training model, meaning that a total of 26 districts will be implementing this intervention in the near future [Greer et al., 2004].
Wholesale counter attendants and mobile vendors were equipped with customized job aids in Kiswahili, within an intervention of vendor-to-vendor education. The job aids consisted of a shopkeeper poster that was to be consulted when selling anti-malarial drugs. This listed the clinical symptoms of malaria, a dosage chart of the approved brands of SP and anti-pyretics, treatment advice, and common situations faced by the private outlets with suggestions on how to deal with them. A client awareness poster was to be hung near the entrance of the outlet to generate consumer demand for the approved brands of SP and to communicate that SP was now available over the counter. It urged customers to treat malaria properly by using one of these recommended drugs which were depicted in their actual packaging. The approach was later supplemented by a community-based intervention called ‘neighbor-to-neighbor’, which used a pyramid distribution of BCC materials to engage and educate the community.

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*Box 17*

**Vendor-to-vendor education in Bungoma District**

Malaria control and finances are decentralized in Nigeria. At national level, with the collaboration of RBM partners, the emphasis is placed on development of key control policies and guidelines, allocation of resources and resource mobilization, and monitoring and supervision. State-level efforts are concerned with interpreting policy, resource mobilization, support and supervision for implementation, and establishing links between local government agencies and the NMCP. Local-level activities focus on resource mobilization and implementing community-based activities. All levels are involved in monitoring and evaluation. An advocacy tool for sharing information on malaria progress and control was developed for influencing state policy-makers and for communicating current strategies and activities. Collaboration on an epidemic preparedness project is planned for the regions on the fringes of the Sahel. The NMCP is still faced with limited capacity for implementing planned activities and for assisting state and local officials. A further challenge is promoting the collection and use of high-quality data and to promote evidence-based decision-making. Nigeria reported US$ 3.5 million in government funding for malaria control in 2003, with an additional US$ 2.3 million from other sources. The GFATM will contribute a further US$ 40 million under two grants. The development of an effective partnership mechanism in Nigeria to improve coverage, increase funding and cost effectiveness of malaria interventions has been the major focus of RBM in Nigeria. There have been series of sensitization and consensus building meetings geared towards partnership building and the development of a
The National Malaria Control Committee (NMCC) brings together on a quarterly basis providers from the public, private not-for-profit and private for-profit sectors, professionals, researchers and media groups. The key development partners are WHO, UNICEF, UNDP, Word Bank, BASICS, USAID, DFID, Futures Group, Department for Family Development (DFD), Society for Family Health (SFH), JICA and CIDA. BASICS II helped to develop an integrated child health booklet with key messages on malaria control that has been adopted by the government, and produced a communications and behavior change strategy and materials for improving home management of malaria and the use of ITNs.

Nigeria’s new malaria treatment policy recognizes for uncomplicated malaria Coartem® as first line, and quinine as second line treatment. For severe malaria, quinine is first-line treatment, and IPT in pregnancy is based on SP. The current policy has been highly controversial. CQ efficacy varies across the country (efficacy still above 75% in the Northwest) and many clinicians believe that CQ is preferable to other antimalarials. Coartem® is procured through GFATM funding, and the deployment and implementation process is ongoing. Projected costs of ACT amount to US$ 7.1, as opposed to US$ 0.4 for a course of prime CQ, placing ACT out of the reach of the poor.

The majority of malaria episodes are treated at home with drugs purchased in private for-profit service providers (one study found that 71% of mothers manage their child’s illness at home with antimalarial drugs). PMVs are informal providers who are well established members of the community. In western Nigeria, primary health care training of PMVs improved knowledge about malaria as well as other infectious disorders and malnutrition. This approach for improved management of childhood malaria was developed further and expanded to three states (Abia, Lagos and Kano) in collaboration with BASICS, SFH and PSI, funded by USAID. The intervention package is targeted at PMVs and includes PMV education through peers, marketing of pre-packaged age-specific doses of antimalarials and BCC through mass media. The intervention led to an increase in appropriate PMV practices in selling correct dosages of appropriate antimalarials for childhood fevers. Scaling up is under way in selected states.

The proven malaria control interventions such as ITNs, IPT for pregnant women and ACT are new to the majority of Nigerians, and there is therefore a need for massive awareness campaigns to increase demand and utilization rates. Private sector health provision is well developed, but concerns about access and equity remain. Development partners are providing technical assistance and funding, and build capacity of implementing partners at state and community levels in the implementation of RBM initiatives. In this large country of over 128 million people, there is a need to harness the private sector and to build effective public-private partnerships. The PMV intervention demonstrated that with highly focused and short training sessions, it is possible to reach hundreds of medicine shops in a state or province in less than a year. The approach can readily be adapted, for instance to other child health issues that require only a few key messages, involve relatively safe drugs with simple regimens, and where the PMVs would be motivated by increased sales.

Source: Country assessment: Nigeria [Amadi, 2005]
By using existing channels of communication to reach drug vendors, positive results were attained with a minimum of input. The approach makes use of wholesalers who have a vested interest in continually visiting and recruiting new shops, and therefore is able to cope with high turnover of shops and shop assistants.

The feasibility of taking an intervention to scale for targeting medicine sellers was demonstrated in the Abia project in Nigeria, which targeted patent medicine vendors (PMVs), and now covers several states. The intervention relied more on project staff and community input than either the Kilifi intervention, which relied more on MOH personnel, or the vendor-to-vendor intervention that relied on private sector workers. The Nigerian PMV intervention, a partnership between State Authorities, BASICS, SFH, PSI and USAID, is presented in detail by Greer et al. (2004), and summarised in the Nigeria case study.

SOCIAL MARKETING

Social marketing (SM) uses commercial marketing techniques to stimulate demand for effective public health interventions that are then sold, often through the private sector. SM is one of the few private sector interventions that have been taken to scale by national and international financing agencies. Over 75% of SM programme funds are spent in the private sector, either in commodities or in associated professional, transport, packaging and distribution functions. SM organizations are often non-profit firms or associations, but the products tend to be distributed through various for-profit outlets and NGOs. SM has become an effective way of motivating low-income and high-risk people to adopt healthy behaviour, including the use of needed health products and services. Well designed BCC campaigns are intrinsically linked to SM approaches, in fact, SM is increasingly being used to address lack of consumer information.

The strategy has been applied to diverse health interventions (family planning, STI treatment, hand-washing, water purification, etc) and is successfully used in malaria interventions. Socially marketed PPAM is for instance available through PSI and its local partners in Myanmar (Sure artesunate combination therapy), Cambodia (Malaria) Nigeria (KidCare) and Madagascar (Palustop), sold at a subsidised price in pharmacies, registered drug vendors and private health provider franchises. Several brands of rapid diagnostic tests are also socially marketed.

Box 18
Evolution of the social marketing approach

Social Marketing of ITN products has started to concentrate more on the development of the market as a whole, rather than on the sales of their own branded products.

NetMark’s approach ‘Full Market Impact’, PSI’s model ‘Coverage Plus’ and Futures Group’s ‘Third generation social marketing’, sometimes called the Total Market Approach, all refer to the active collaboration with the commercial sector to move towards a sustainable commercial ITN market. This leads to increased availability, affordability, appropriate use and demand for high-quality ITNs in countries where ITN SM is operational.

By providing subsidized commodities, SM also helps to increase affordability. The level of subsidy differs enormously between projects and types of intervention; however, the price of a product often covers its cost, leaving the promotion and distribution costs to be covered by public funds. This form of subsidy is usually untargeted, raising the possibility that a substantial share will leak to people who would otherwise have purchased the product at the full price. Other measures are taken to further improve affordability of already subsidized products, for instance by the use of voucher schemes.

Social marketing has been instrumental in giving a much-needed kick-start to an emerging commercial market for nets in Tanzania, as illustrated in the following case study.
Box 19
Examples of social marketing

Social marketing of LLINs
PSI-Sudan, in partnership with the South Sudan Secretariat of Health (SOH), is implementing a Social Marketing of Long Lasting Insecticide Treated Mosquito Nets program, which they expect will avert more than 420,000 episodes of malaria and prevent the deaths of nearly 2,500 children. Funded by DFID, PSI-Sudan and SOH will distribute 182,000 Serena and Serena Dumuria LLINs to low-income populations and run educational campaigns to ensure consistent and appropriate use of these products. In countries with high and equitable net coverage (e.g. Cambodia, Mali), the promotion of retreatment of existing nets through SM of retreatment kits becomes a key strategy.

Nigeria - Developing a viable commercial ITN market through ‘Third Generation’ social marketing
Futures Group, funded by DFID, is using the ‘Third Generation’ social marketing approach to encourage a viable commercial ITN market. This involves using donor funds to support and strengthen the marketing efforts of competing manufacturers of insecticides and nets. Futures Group’s activities have attracted investment and commitment from the business sector to develop branded products and establish sound distribution networks. The competition generated has driven down prices, created wider choice for consumers, encouraged distributors to make a more assertive effort with their own marketing strategies, and generally increased business confidence into the ITN market. ITN availability has expanded to almost every state, and four companies are now producing an estimated one million nets a year, while net stitchers’ associations produce more than three million nets annually. The public sector’s key responsibility is in fostering an enabling environment. For instance, the removal or reduction of tax and tariff barriers is key for ITN market growth (government tariff on nets currently at 40%). Source: Futures Group, 2002.
Partnerships for Malaria Control: Engaging the Formal and Informal Private Sectors – TDH/GEN/06.1

Case study

Tanzania - public and private sectors jointly pioneering the scaling up of ITNs

Tanzania has pursued the testing, improvement and scaling up of ITNs in a 20-year process beginning in the mid-80s with entomological trials and efficacy studies. These were followed in the 1990s by effectiveness studies on mortality and morbidity impact of ITNs and cost assessments. While studying impact, much was learnt about different approaches to ITN and insecticide distribution. From 1997 to 2000, further operational and intervention research and policy development took place. By 2000, two social marketing programmes were operating: the Kilombero Net Project (KINET) implemented by IHRDC and STI operating in two Southern districts, and the SM for ITNs Project (SMITN) implemented by PSI, which started in four districts in 1998 and went national in mid-2000. The design and testing of insecticide home treatment kits and studies on net re-treatment were also pursued. Results demonstrated that ITNs were highly efficacious, effective, cost-effective and that large scale expansion was feasible.

Broad involvement of stakeholders from the private (nets and insecticide manufacturers, marketing firms), public and NGO sectors, research and academic institutions, donors and multilateral agencies started in 1999. The constituted multi-sector Task Force facilitated the formulation of the ‘National Strategic Plan for ITNs in Tanzania’ which was endorsed in November 2000. The three core concepts of the National ITN Strategy (NATNETS) are: increased demand creation for ITNs; a national PPP for developing a sustainable domestic commercial ITN market; and targeted subsidies aimed at high-risk groups.

Partners’ involvement was defined based on traditional roles and comparative advantages. The public sector focuses on consumer protection, policy and regulatory issues and generic demand creation, in order to create an ITN-enabling environment. The NGO sector focuses on grass-root demand creation and support for specific niche supply. The commercial sector focuses on supply and distribution, product development, and brand-specific demand creation. The research community assists with product development, implementation and market research, and monitoring and evaluation. Bilateral donors provide strategic funding support, and support strategic thinking across sectors.

NATNETS is overseen by a Steering Committee and benefits from the ITN consultative group, a stakeholder forum. The programme is a long-term multidonor, multi-partner initiative with three major operational components:

1. The ITN cell, supported by the Swiss Agency for Development and Cooperation (SDC) through the Swiss Tropical Institute (STI). It is a coordination unit to create an enabling environment for taking ITNs to national scale (critical enabling factors are the removal of any form of taxation, favorable insecticide regulatory conditions, net quality control, generic demand creation and equity of access). Following a public-private sector agreement in 2002, all nets leaving Tanzanian factory doors for the domestic market are bundled with retreatment kits. Through a continuous lobbying process, all netting items were finally zero-rated for VAT in 2004, and VAT on imports of inputs such as the yarn can be reclaimed.

2. Strategic SM for Expanding the Commercial Market for ITNs in Tanzania (SMARTNET) is a 5-year initiative managed by PSI Tanzania and funded by the British...
SMARTNET develops the supply chain - it assists the Tanzanian net manufacturers to expand their wholesale and retail network through multi- and single-brand advertisement of their products, identification of wholesalers and retailers and provision of transport subsidies to remote locations. In 2004 the combined sales of Tanzanian manufacturers on the domestic market reached nearly two million insecticide-bundled nets and the projections for 2005 are over 2.5 million. This illustrates the growth potential of the market when assisted strategically by the public sector.

SMARTNET also supports the development of a national distribution network for insecticide treatment kits. In 2004, nearly 2.2 million additional insecticide treatment kits were sold. Tanzania is in a unique situation in sub-Saharan Africa by having four domestic mosquito net manufacturers with a total annual net production of over five million nets, of which nearly two million entered the domestic market in 2004.

3. The Tanzania National Voucher Scheme (TNVS) is a five-year scheme supported by GFATM, which started operating in 2004. TNVS, modeled on KINET and informed by the UNICEF pilot in Kilosa and Kibaha, selectively targets pregnant women with vouchers given out at the first ANC visit. The voucher can be exchanged as part-payment for an ITN purchased at a shop which is participating in the voucher scheme. TNVS aims to provide a facilitated and equitable access to ITNs to high risk groups. The voucher allows restocking without any risk to the retailer, as the voucher is set at the wholesale price of a net.

By February 2005, 700 retail outlets in seven regions were involved in the TNVS, of which over 70% were new to the ITN business, and sales figures at retail and wholesale level had increased by 50-80%. The TNVS is expected to support a rapid expansion of ITN use and to encourage private sector involvement in the manufacture of ITNs and their delivery to rural communities, since there will be widespread and predictable demand for ITNs. The scheme is implemented by tendered contractors (including Care Tanzania, World Vision, LSHTM, IHRDC and KPMG). This may be an efficient and effective way of introducing a complex new public health service, and could provide a model for future interventions. It is expected that the NATNETS initiative will enable Tanzania to become the first large African country to meet the Abuja target for ITN use.

Source: Country assessment: Tanzania [Mwisiongo, 2005]

**Social Franchising and Accreditation Networks**

Social franchising in the health sector aims to leverage the efficiency and incentives of the for-profit sector for the distribution of services and products that improve the quality, access to, awareness of and/or pricing of products and services with public health benefits. Accreditation is an element of the franchising process, but can also be used on its own as a measure to improve quality of service provision, through an authorised body granting accreditation if certain standards are met, and removing the accreditation if these standards are no longer met.

The social franchising approach seeks to improve the overall quality of shops, products, and seller performance. Owners undergo an accreditation procedure and may get access to microfinance or quality assured and competitively priced drugs. Sustainability and performance are ensured through ownership. Consistent quality is ensured through tight franchise systems and controls. Shop owners who do not maintain standards can lose their accreditation and investment. Efficiency is achieved through central drug supplies, scale and standardization. Through franchising, medicine sellers become active health care providers, as illustrated by the CFW Shops and the CAREshop franchises.
Box 20
Franchising - a successful business model

“New store expansion can be accelerated because much of the investment capital and many of the management decisions come from local franchise owners, distribution of fixed costs across many outlets provides economies of scale in purchasing and advertising which only large networks can provide, and the financial risks and rewards associated with local ownership assure that franchise operators will work hard with a relatively lower level of supervision” [Montagu, 2002].

Box 21
Social franchising networks

**Child and Family Wellness (CFW) Shops in Western and Central Kenya**
This is a franchise network of Micro Health Outlets run by medicine sellers and health workers, which employs the same principles that drive multi-national franchisers. CFW Shops has expanded from 11 outlets in 2000 to 65 by June 2005 (42 shops and 23 clinics). Outlets are sited primarily in poor, rural areas underserved by the existing medical infrastructure. They are serving 350,000 patients per year on a run rate basis. Over 40,000 patients were treated for malaria in 2004. In 2005, CFW Shops is opening 10 new clinics in the Kibera Slums of Nairobi [CFW Shop Presentation, SEAM Conference 2005]. The franchise places significant focus on prevention and sells ITNs, water treatment, contraceptives, condoms and hygiene products. The intervention is supported by the World Bank/IFC, MSH, Rockefeller Foundation, Goldsmith Foundation, Acumen Fund, GFATM, Richard Gere Foundation, The Case Foundation and the Sustainable Healthcare Enterprise Foundation (SHEF).

In general, in franchise networks there is a need to achieve a critical mass of franchisees in order to benefit from economies of scale in advertising and monitoring, obtain maximum benefit from quantity discounts and become self-financing [Montagu, 2002]. This may mean a network of several hundred outlets. The CFW Shop program in Kenya demonstrated the importance of a locally based NGO that seeks and coordinates initial funding until the franchise system is self-sufficient. The emphasis on wider performance and operating standards in the franchise approach means a relatively slow scaling up of the intervention. Much investment goes into training and supervision, supply systems, micro-credit support, and in creating the franchise identity. The micro franchise model provides the incentives and controls that make rural drug delivery efficient, effective and sustainable. Patient visits per outlet...
are also increasing, thus expanding public health benefits and enhancing financial sustainability.

The franchising model may be a critical tool to address the problem of drug distribution, although experience in managing scale up is still limited. This model is demonstrating clear potential to provide a secure channel for the delivery of essential drugs, and radically lower the cost of creating access to these medicines. To date, social franchising has been conducted in relative isolation from government. The most common model has been that of a non-profit NGO as franchiser, and for-profit entities (small clinics/pharmacies/drug outlets) as franchisees.

The Tanzanian ADDO Programme provides an example of an accreditation scheme which is driven by the public sector.

Social franchising has the potential to allow government to expand healthcare provision using for-profit providers, and without the need for high infrastructure costs required for direct governmental provision of care. Prata et al. [2005] conclude from a recent assessment of the range of systems that have been used for working with private providers (from contracting to vouchers to behavioural change and provider education), that franchising has great potential for integration into large-scale programmes in Africa to address critical illnesses of public health importance.

### Case study
**Tanzania - the Accredited Drug Dispensing Outlet (ADDO) Programme**

The ADDO programme is an initiative by the Tanzanian Food and Drug Authority and MSH/CPM to improve access to affordable, quality medicines and pharmaceutical services in retail drug outlets in rural or peri-urban areas where there are few or no registered pharmacies. The programme consists of training courses for dispensers and owners, owner incentives, such as legal approval to sell a limited range of essential prescription drugs, a programme financed marketing campaign, access to micro-financing, links to health financing schemes, and clarification of tax and business licence fee liabilities. It also provides an innovative system of regulation, using ward-level local government officials trained and deputized as inspectors to ensure that accredited shops maintain approved standards and that non-accredited shops do not compete unfairly. The program contributed significantly to improving access to essential medicines and rational drug use in Ruvuma. For instance, the proportion of unregistered medicines in retail drug outlets in Ruvuma was reduced from 26% to 2% through the intervention. The list of drugs that can now be sold in accredited outlets has been expanded beyond OTC-only drugs to 31 prescription only drugs, including first line antibiotics for pneumonia. The programme is currently being rolled out to other regions in Tanzania through GFATM funding.

Source: Country assessment: Tanzania [Mwisiongo, 2005]
4.5 Policy level: key strategic options

Recognizing the importance of the private sector in health system outcomes does not imply that the public sector has a diminished role to play. Rather, attention is drawn to the often neglected government role of stewardship (quality assurance, access and equity, policy, legislation and regulatory issues), without which the private sector operates unchecked and unguided (table 4). Governments should regulate the private sector not just in the sense of legislating and administering formal rules, but also by intervening to alter the incentives available to private sector institutions and thereby their activities and performance outcomes. Governments play a key role in demand creation through IEC, promotion, advertising and BCC campaigns, in order to create the ‘pull factor’ on the demand side for malaria control tools, and in wider consumer education and protection functions.

In order to make PPPs for malaria control succeed, a number of enabling factors are to be considered. They are summarised in the table below and discussed on the following pages.

Table 4: Key strategic options for policy makers

<table>
<thead>
<tr>
<th>Option</th>
<th>Strengths</th>
<th>Weaknesses</th>
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| Removal of taxes and tariffs | • Decreased retail prices of commodities  
• Increase of demand as a result of better affordability  
• ‘Crowding in’ private commercial sector  
• Increased competition  
• Increased innovation | • Government loss of revenue  
• Domestic production loses some protection due to removal of import tax  
• Bureaucratic procedures of reclaiming VAT |
| Regulatory controls         | • Protection of consumers  
• Curtailing of medical malpractice, negligence  
• Control of counterfeit drugs  
• Good procurement practices  
• Good manufacturing practice  
• Accreditation of quality products  
• New technology for drug testing on site | • Lack of enforcement capacity  
• Budget constraints  
• Vested interests in unchecked private sector  
• Difficulty to control informal sector  
• Limiting access to commodities  
(e.g. licensing of few retailers) |
| Price regulation            | • Protection of consumers  
• Increased affordability of drugs  
• Various forms  
(recommended retail prices, promotion of low-cost generics, differential pricing) | • Lack of enforcement capacity  
• Vested interests in unchecked private sector  
• Difficulty to control informal sector  
• Increased public sector costs due to leakage of subsidized commodities  
• Risk of diminishing supplies |
| Strategic market development | • Understanding of overall market and comparative advantages of actors  
• Strengthens government ownership of strategy  
• Aids improvement of public sector commodity management  
• Defines roles for public and private sectors  
• Aids design of segmentation strategies  
• Informs demand creation  
• Leads to better targeting  
• Gives framework for negotiation with manufacturers  
• Supports development of financing strategies | • Requires careful study of market and analytical capacity  
• Complex and time-intensive  
• Cooperation of many stakeholders  
• Relies on multi-disciplinary team |
Box 22
Removal of taxation in Uganda

In Uganda, import tariffs as well as value-added tax (VAT) has been waived for mosquito nets and netting material in 1999. In 2002 the Uganda Bureau of Standards adopted the WHO-recommended quality standards for mosquito nets. Both government interventions resulted in an upsurge of sales due to reduced retail prices (figure 4).

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Removal of Taxes and Tariffs

Tax removal on ITNs is one of the commitments from the Abuja Summit. PPPs can be instrumental in the lobbying process required for the removal of all forms of taxation, as illustrated by the Tanzanian experience [Magesa et al., 2005]. Finally, from the end of 2004, all netting items are zero-rated for VAT in Tanzania, and the VAT on imports of inputs (yarn, machinery, utilities) can be re-claimed against proof that the material was used for netting manufacture. The removal of any form of taxation on nets, netting material, and yarn leads to a substantial decrease in retail prices. As a result of lower prices, demand for nets increases dramatically and this allows net manufacturers to develop the market.

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Figure 4. Trend in ITN sales in Uganda 1995 to 2004

REGULATORY CONTROLS

Regulation is a function of the market as well as, potentially, an influence on it. Most developing countries suffer from weak regulatory controls, and this partly explains the thriving large informal sectors in these countries. Approaches to strengthening the position of consumers in private medical markets are not well documented and possibly quite scarce in developing countries. In these contexts, consumers commonly lack the institutional structure to seek redress when they have been victims of medical malpractice or negligence.

Regulatory issues are important in a number of aspects including drug and insecticide registration, dispensing practices, the definition of authorized retailers, product quality, and consumer rights and protection.

In areas where drug quality is a major public health problem, government intervention is required to protect the public from the harmful effects of fake drugs and unregistered medicines.

PRICE CONTROL

Affordability of drugs at PSPs is often compromised by large price mark-ups. Retailers have considerable market power, and existing levels of competition in the retail drug market may not ensure competitive retail prices.

Box 23
Key regulatory issues in relation to malaria control

- The process of insecticide registration at country level can potentially be sped up by fast-tracking those products already approved by WHOPES.

- Home insecticide retreatment kits should have a wide distribution and not be limited to authorized retailers such as registered pharmacies.

- ITNs should be sold bundled with insecticide treatment kits by public-private sector agreement.

- Rational drug prescription by the private sector is difficult to regulate and supervise, a strategy may be for the public sector to work in partnership with providers’ representative organizations in order to promote professional ethics, building on non-financial incentives such as the desire of providers for social recognition and prestige.

- Review and revision of legislation or regulation governing dispensing practices, together with advocacy with pharmacists and medical associations, may be needed to enable community based health workers and drug distributors to expand access.

- Substandard and counterfeit antimalarial and other drugs are widespread. Appropriate measures might include: promoting good procurement practices in the public sector; monitoring and supporting Good Manufacturing Practices compliance by manufacturers and suppliers; and supporting the implementation of sound and effective quality control and pharmacovigilance surveillance programmes within drug regulatory authorities to ensure safe use of good quality antimalarial products.

- ITNs reaching national quality standards based on WHO norms can be certified by a logo (the logo would justify a higher sales price and protect the manufacturers making higher quality nets).

- Direct consumer education helps to inform patients about what constitutes care of good quality for a range of common medical procedures, and information about prices could help patients when they choose providers.
Case study
Drug regulation and quality in Cambodia, Nigeria and Tanzania

Cambodia - intensifying quality assurance of drugs and private sector providers

The Cambodian National Drug Policy of 1995 has as objectives to ensure the availability of safe, effective and good quality drugs to the whole population at an affordable price, and to rationalize the supply and use of the drugs throughout the country. The National Laboratory for Drugs Quality Control (NLDQC) tests the quality of drugs for registration, but there is weak and inconsistent compliance with legislation on drug registration. Sub-national and local health and pharmaceutical personnel conduct inspections at distribution chains, including ports of entry, wholesale premises and retail pharmacies. Nevertheless, enforcement of pharmaceutical law and regulations remains weak, and there is widespread availability of counterfeit and substandard medicines. The Government has therefore begun to collaborate with international organisations such as WHO and the US Pharmacopeia Drug Quality and Information Program. GPHF-Mini-lab® kits will be procured in a phased manner for drug quality assurance at provincial laboratories. The MOH has vowed to close down unlicensed pharmacies and unregistered and self-proclaimed healers, and has committed itself to ensure appropriate legislation for the registration and annual licensing of all health professionals in the country.

Source: Country assessment: Cambodia [Babu and Socheat 2005]

Nigeria - giving a broad mandate to the National Pharmacovigilance Center

The National Drug Policy focuses on self-reliance in essential drugs, vaccines and biologicals through local manufacture and an effective drug administration and control system. The Institute of Public Analysts of Nigeria has the mandate to train public analysts and license laboratories to ensure quality assurance of locally produced and imported products. The Standard Organization of Nigeria was established to set standards for all manufactured/industrial products, and the National Agency for Food and Drug Administration and Control regulates and controls the manufacture, importation, advertisement, distribution, sale and use of food, drugs, medical devices and other regulated products. The National Pharmacovigilance Center was set up to assess and communicate risks and benefits of drugs on the market, promote rational and safe use of medicines and educate and inform the patients. The need for such an institution is illustrated by the results of one study, which found that almost half of nearly 600 antimalarial, antibacterial, and antituberculosis drugs purchased in Lagos or Abuja did not comply with set pharmacopoeial limits. The sample included CQ, SP and quinine, some of which had less than 25% active ingredient. Authorization and licensing of retailers and producers of health commodities and services is the responsibility of the Federal Ministry of Health. There is hardly any price regulation role by the government; manufacturers use their distributors to regulate prices of their products.

Source: Country assessment: Nigeria [Amadi, 2005]
Case study
Drug regulation and quality in Cambodia, Nigeria and Tanzania

Tanzania - a major PPP focusing on regulation and malaria treatment has been initiated and will be scaled up by the government

The Quality Assurance (QA) Programme was initiated in 2001 following a pharmaceutical sector assessment by TFDA and Management Science for Health/Centre for Pharmaceutical Management (MSH/CPM) which revealed a high proportion of unregistered drugs in the market and a drug quality failure rate of 13%. The programme is a comprehensive intervention of inspection and screening of drugs using the minilab testing technology. MSH/CPM through SEAM funded by Bill and Melinda Gates Foundation provide technical support. Key features of the programme include producing reliable data on products available to inspectors before entering the market, developing skills of inspectors in physical inspection, use of Minilab kits to assess product identity, disinfection and drug content, and to identify substandard, fake, or wrong drugs inexpensively and quickly. The program started with inspection of antimalarials (SP, quinine, artemisin), followed by antibiotics and anti-retrovirals. Plans are underway to scale up the programme.

Source: Country assessment Tanzania [Mwisiongo, 2005]

Box 24
How mark-ups affect antimalarial drug prices

Amin and Snow [2005] found that mark-ups for SP and AQ tablets in Kenya were between 100–347% when they reach the peripheral retail level. Goodman et al. [submitted] found in rural areas of three districts in Tanzania that the overall mark-up for loose SP tablets was almost 600%, and for packaged tablets, around 1000%. Only loose chloroquine in drug stores, and loose quinine in general stores, had overall mark-ups under 100%. These percentages incorporate all mark-ups along the distribution chain; however, retail mark-ups were also high and highly variable. The price of innovator brands (those first authorised for worldwide marketing) was 57% higher than unbranded generics, and innovator brands were also significantly more expensive than branded generics.

Strategies to ensure that antimalarials are priced affordably are required. Expansion in the number of drug stores, or in the number of general stores stocking antimalarials is problematic, as long as capacity for drug-specific regulatory inspections is limited. An alternative to increasing competition is price control. However, this is equally unlikely to be enforceable, given the weak regulatory capacity of governments. Moreover, price regulation requires sensitive adjustments to changes in producer costs in order to prevent the development of parallel markets with unregulated prices. Price control also bears the risk of diminishing supplies due to reduced profit margins for the commercial sector.

Another critical issue is the responsiveness of demand to price (‘price elasticity of demand’). There is a lack of information on the price elasticity of demand for ACT which could help to guide decisions about the level of subsidy required to ensure demand [Hanson, 2004]. Simon et al. [2002] report that data on the price elasticity of demand for ITNs are also limited, and that country specific information on the
CASE STUDY

Senegal - promotion of generic drugs in the private sector to improve drug access

The Senegalese Pharmacie Nationale d’Approvisionnement (PNA), a state-owned enterprise, is responsible for importing, storing, and distributing Senegal’s essential drugs. The PNA supplies five regional stores which in turn supply the district depots, which then provide drugs to all public sector health facilities except the ‘health huts’ who receive their supplies from health posts. Overall, the public sector accounts for about 35% of the sales value of antimalarials. The Ministry of Health (MOH) has requested district health facilities to reduce profit margins on antimalarials during the transmission season.

Private sector drugs come from four private wholesalers feeding into about 650 pharmacies that sell drugs to consumers and to private chemists. These networks represent nearly 65% of the total sales value of antimalarials in the country (excluding the illegal market). The private market is efficient at maintaining stocks, especially for urban pharmacies, which may be supplied daily. Most of the products in the private sector come from France and are marketed under brand names, but essential generic medications - mostly locally produced - are sold under standard International Nonproprietary Names (INNs). Since June 2003, private networks have also distributed generic medications under INNs that they purchase at the PNA, which appear on the limited list of thirty medications, including CQ tablets and two dosages of injectable quinine. The promotion of generic more affordable medications in the private sector is an important aspect of the country’s drug policy reform in the framework of the Integrated Health Development Plan. The ‘substitution law’ entitles pharmacists to substitute a branded medication by the equivalent generic medication (applicable also to POMs). Private sector dispensers are encouraged to sell generic drugs at minimal profit margins. The private pharmaceutical sector receives government support in order to successfully access generic drugs on the international market. In 2003, the public network provided four antimalarial drugs (CQ, amodiaquine, quinine and SP), which come in nine different presentations, forms, and dosages. In the private sector, there were 13 compounds sold in 89 presentations, forms, and dosages.

Parallel to the public and private legal networks is a large, thriving illegal market providing pharmaceuticals at wholesale and retail levels, supplied from many sources, including patients who sell full or partial doses of POM. Prices in the illegal market can be 30% lower than in the private sector, which makes them attractive to middle class as well as poorer customers, with or without a prescription.

With the change in malaria treatment policy in June 2003, IPT with SP is provided to pregnant women for free during prenatal consultations in public, private and semi-public healthcare structures (the former strategy, chemoprophylaxis with CQ, reached coverage rates of 68% in pregnant women). Senegal plans to implement ACT in healthcare structures with GFATM funding.

Quality assessments of antimalarial drugs are the responsibility of the National Drug Monitoring Laboratory, and this includes all drugs channelled through PNA, local pharmaceutical industries, private wholesalers and all health facilities. Senegal has a relatively mature economy, and the private sector dominates the provision of antimalarial drugs. The complexity of the legal and illegal supply and distribution systems gives some sense of the difficulty of regulating the drug market. While the government works toward greater control, rational drug use and greater equity, the current mix of systems will not be changed quickly.

Source: Country assessment: Senegal [Sakho, 2005]
structure of the market and cost conditions is required if predictions are to be made on how a change in retail prices will affect ITN purchases.

RECOMMENDED RETAIL PRICES
An alternative approach would be the use of recommended retail prices (RRP) for antimalarials. Although most drug manufacturers and importers provide distributors with schedules of recommended wholesale and retail prices, these were very rarely found to feed down to the periphery [Goodman et al., 2005]. RRPs are widely used for common products in general stores, such as soft drinks and cigarettes. Although strict enforcement would not be possible, printing recommended prices on product packaging, and publicising them widely through a mass media campaign could put some downward pressure on profit margins. This would be unlikely to discourage drug stores from stocking antimalarials altogether, as treatment of fever and malaria is such a core part of their business.

PROMOTION OF GENERIC LOW-COST DRUGS
One policy option is the promotion of generic low cost drugs across the public and private sectors, which remains relevant in areas where CQ and SP are still effective for malaria case management or IPT. The promotion of generic drugs is illustrated in the case study from Senegal.

PUBLIC PRIVATE PARTNERSHIPS AND DIFFERENTIAL PRICING
A group of international PPPs aims to improve access to pharmaceuticals that are critical to treatment or control of diseases disproportionately or uniquely affecting the poor in developing countries. This category of partnerships for drug access is usually based around the provision of products that are donated or heavily discounted in low income countries. An important policy issue is the adoption of differential pricing, where a product is made available at a lower price in markets with less ability to pay. In 2001, WHO and Novartis signed an agreement to make Coartem®, a co-formulated branded ACT, available at cost through WHO for use in the public sector of malaria-endemic developing countries (2001–2011 WHO/Novartis Coartem® Public Purchase Agreement).

Case study
Tanzania - implementation research and partnership formation for the introduction of ACT

The Access Programme, a partnership between Ifakara Health Research & Development Centre and the Novartis Foundation, addresses the availability of antimalarial drugs in villages in the Morogoro Region. It was found that in 2004 the availability of antimalarials in general shops had decreased markedly since the policy change from chloroquine to SP. In 2004, only 7% of drug selling shops had an antimalarial in stock, and SP was sold in only 2% of these shops. Only 5% of children under five received appropriate antimalarial treatment within 24 hours in villages without a shop selling antimalarials, compared to 40% if there was such a shop. These and other research results will feed into the discussions on how to programmatically deploy ACT in Tanzania. The following PPP arrangements have already been decided upon for ACT introduction:

- Novartis for provision of ACT at low cost;
- Africare and Plan international for undertaking the community level awareness creation of the ACT policy;
- PSI for implementing mass communication;
- IHRDC for monitoring and evaluation and operational research;
- GFATM as funding source.

Source: Country assessment: Tanzania [Mwisiongo, 2005]
Newer co-formulated ACTs are also becoming available at affordable prices for the public and not for profit sectors, developed through a consortium of public and private partners. The development is led by the not for profit Drugs for Neglected Diseases Initiative, working with WHO, several companies and developing country research organisations.

Discounted pricing initiatives provided through partnerships with pharmaceutical companies may be restricted to the public sector, or the public sector might benefit from higher subsidy than the PSPs. Such restrictions are a disincentive to private providers, and also increase public sector costs in terms of product leakage. Where there are significant price differentials across shared international borders, and problems of control and monitoring of public sector supplies, illegal cross-border flows of drugs are likely to occur. The potential for such cross-border flows clearly exists with higher value commodities such as ITNs and ACT [Hanson, 2004]. There may be arguments for a regional approach to policy.

**STRATEGIC MARKET DEVELOPMENT**

Where the private sector is already involved in delivering a cost-effective intervention, increased public provision might simply substitute for private provision, leading to no overall increase in use or coverage [Hammer and Berman, 1995]. An accurate picture of the existence of actual or potential substitute providers is therefore essential, and requires better information about the entire market for these interventions. However, public provision may help to build a market for a product, known as ‘market priming’ or ‘crowding in’ the private sector. The process of market analysis and planning is described in detail in a useful guide by Slater and Saadé (1996). This was used for the initial development of the ITN intervention in Ghana [Macdonald and McGuire, 1999].

Donors and partner governments are increasingly starting to develop so-called Total Market Approaches in order to develop a comprehensive strategy for specific commodities, and to support public, SM and commercial sectors to identify their core market segments and develop cost-effective distribution strategies.

**Box 25**

**Towards the ‘total market approach’ (TMA)**

The ‘total market approach’ means developing a comprehensive analysis of the overall market for the product or service, and assessing the comparative advantages of different actors on the supply-side, in terms of their ability to deliver products at a range of prices to specific market segments. The model would aid the design of segmentation strategies to ensure better targeting, the development of demand across all sectors, and negotiation with manufacturers to explore potentials for a combination of their brands and SM brands where appropriate. It would also involve improvements to public sector commodity management, in terms of approaches to targeting the poor, procurement, supply chain security and public sector pricing, if appropriate. The TMA enables the allocation of clear roles to public and private sectors, stronger government ownership of the overall strategy, and the development of sustainable donor and government sub-sector and financing strategies. The public sector does not undertake social or commercial marketing itself, nor attempt to direct or control the market, by price setting for example. Instead, it focuses on its stewardship role. Such a comprehensive strategy is emerging in Tanzania, and in Mozambique and Malawi. Source: Meadley et al, 2003.

The Tanzanian case study on ITN scale up describes how, for a new product, the government has developed an overall strategy for market development. Following initial market priming, the SM brand was phased out as local manufacturers or importers entered the market (figure 5). Tanzania’s strategic approach to increasing coverage for ITNs has enabled substantial expansion of the domestic manufacturing industry from one manufacturer in the 1980s to four, capable of supplying both domestic and regional markets.
This competition was useful in augmenting net quality. However, the findings by Webster et al. [2005] imply that the existence of a local net factory is not a prerequisite for high commercial net coverage. There are no factories making nets or netting in the two larger Sub Saharan African countries with exceptionally high and equitable net coverage levels, Mali and Madagascar. In countries where nets are mainly produced by local stitchers in small workshops (see case study Nigeria), the increased demand in nets can lead to substantial growth of these small enterprises in the informal private sector.

Demand creation through public sector marketing campaigns benefits all actors in the supply chain. Nationwide multi and single brand advertisement of ITN products can be regarded as ‘subsidies’ to the supply chain and help to expand wholesale and retail networks. If distribution capacity of the formal private sector is insufficient in rural areas, there may be a need to provide incentives or transport subsidies to support supply chain development (as in the Uganda voucher model). Existing informal sector distribution systems, if well developed, can be involved. Partnerships with grassroots organizations for community level distribution of ITNs, as supported by NetMark, can work well in certain settings. In Latin America, net distribution is successfully carried out by community-based cooperatives [Kroeger et al., 2002]. Interestingly, these cooperatives were found to be even more successful in the provision of retreatment services than in net distribution.

Technology transfer to developing country manufacturers is especially important in the production of LLINs. The demand for LLINs worldwide gravely outpaces supply. The development of LLINs technology and manufacturing capacity is another area in which partnerships are instrumental. For LLIN production, partnering of diverse institutions is happening, such as insecticide manufacturers, chemical companies, textile companies, net manufacturers, research laboratories and other private firms. The total cost to establish a LLIN factory is estimated at US$ 2-2.5 million [Broun, 2004]. Investment support may therefore become an important element of the rapid increase of LLIN manufacturing capacity.
5. What are the priorities for implementation research?

Both ITNs and ACTs are proven malaria control tools, but they have not yet achieved their potential health impact. The previous section identified an array of strategic options for engaging the private sector in malaria control. Most of these options have not been implemented on a large scale, often due to implementation problems. Research has a critical role to play in helping to solve major implementation problems that impede access. It is important to note that an appropriate research methodology is essential in order to produce relevant results. Many questions in implementation research cannot be fully understood by looking at a single intervention in a single context. The implementation of comparative research, using comparable methodologies, will allow drawing lessons through an understanding of the effect of context on outcomes.

In order to guide implementation research, WHO/TDR has developed a conceptual and operational framework [WHO/TDR, 2003]. The framework emphasises the importance of the involvement of DEC scientists and health professionals, the need to respond rapidly to implementation problems, and the active marketing of research results. The following sections list strategic issues for malaria control centred on PSPs, consumers, commodities and policy makers with corresponding research questions.

5.1 Private sector providers

Provision of ACT by private service providers

- What are appropriate distribution systems in the private sector?
- Can a system be set up for distributing (branded) pre-packaged ACTs through the private sector in parallel with the public sector drug distribution system that would result in increased coverage of malaria episodes?
- Can the price mark-up for pre-packaged and highly subsidized ACTs by the private sector be controlled so that it will effectively compete with other antimalarials being dispensed by private vendors and result in affordable prices for consumers?
- What is the feasibility and sustainability of large-scale implementation of ACT through the formal and informal health sectors? How can their compliance with simple reporting procedures and regular feedback to data providers be maximized?
- Who are the main partners and specific roles in a collaboration/partnership? What are the locally appropriate models for PPPs for ACT treatment access?
- What are the effects of the availability of free or reduced price drugs on market prices, priority setting at the country level, and the feasibility and sustainability of taking such initiatives to scale?
- What can we learn from partnership models employed in TB treatment by formal PSPs?

Social franchising to increase access to better quality treatment

- How can governments facilitate growth and expansion of existing franchise networks?
- How can governments initiate strategic collaborations towards the setting up of new franchise networks?

Rural shops as provider of early diagnosis and appropriate treatment

- Can a training program for private vendors be implemented in conjunction with the drug distribution system, to lead to adequate management of disease episodes at the community level?
- What are feasible and effective training and retraining schedules for staff at rural drug shops and general shops?
- What is the minimal training package, and who are the critical partners for scaling up to district or national level?
- What companion interventions are required to maximize the training impact?
- How can the engagement of rural shops in malaria EDAT be integrated in district health plans and supervision activities?

Referral practices for severely ill children

- What are the areas in the process of referral in both urban and rural settings that could serve as the focus for future interventions to improve referral of severely ill children?
- Who are the potential partners and what are their individual roles?

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11Implementation research in TDR: Conceptual and operational framework (http://www.who.int/tdr/publications/publications/ide_framework.htm)
**ITN scale up through the commercial sector**
- How does the local commercial sector work, where do nets come from and go to?
- Can a net bundling policy be applied to informal sector net producers? If yes, how?
- What is the scope for using informal distribution networks in order to increase ITN coverage? How are sustained subsidies best targeted and delivered?

**Efficiency of the for-profit private sector**
Since people themselves choose to use and pay for private care, and due to the diversity in the nature and composition of the private sector, studies on PSP efficiency are lacking. However, poor people are frequent users of private sector providers, and it is important that their limited funds are spent on cost-effective care. Some governments are interested in making use of for-profit PSPs to supplement public services. If governments are to act as purchasers, then they need to be sure that the services they purchase are provided efficiently.

**Understanding the private health sector**
- What are the incentives, perceived risks, benefits and challenges of collaborative arrangements with the public sector?
- What are the risks posed by retail sector malaria treatment, and the opportunities it affords for improving access to prompt, effective treatment?

5.2 **Consumers and commodities**

**Home management of uncomplicated fever episodes**
- What are feasible and sustainable strategies to change the behaviour and practices of mothers, households and communities in order to increase the extent of early, appropriate care for uncomplicated fever episodes?
- What is their effectiveness, cost and impact on the disease burden?

**Treatment and retreatment of nets**
- The majority of nets are bought untreated by consumers. How can consumers be influenced towards demanding treated or at least bundled nets at retailers?
- How can net treatment be stimulated by schools, health and community development structures? Can a net impregnation campaign be implemented cost effectively in the local setting?
- What is the effect of distribution of free retreatment kits on net purchasing, treatment and retreatment?
- How can the inequity in net treatment rates be addressed?
5.3 Policy makers

Attitude and practices in relation to private service providers

Many governments, and indeed public health and medical professionals, have understandable concerns about recognizing the role of both the formal and informal sectors (especially semi-qualified providers), and providing publicly incentives to them.

- What are the prevailing attitudes and practices toward private service providers?
- Are they willing to collaborate with formal providers?
- What are the modalities in working with informal, unregulated providers?
- Are governments supportive of social franchising?

Market development for ITNs

- How to plan for the withdrawal of market-priming (i.e. untargeted) subsidized supplies?
- How can demand be strengthened without favouring one ITN brand over another?
- How can the development of the total market for ITNs be monitored (development of methods and indicators)?
- What are good practices for reaching hard-to-reach populations?
- What are the most cost-effective mechanisms for scaling up the delivery of subsidized ITNs to vulnerable populations?

Scaling up of malaria interventions

- How can the implementation of scaling-up programmes, including operational processes, coverage and impact be monitored (development and dissemination of indicators for monitoring)?
- What level of commercial availability is required in order to embark on a voucher scheme?
- What is the relationship between level of subsidy and impact on coverage?
- What are potential points for policy intervention in developing country retail drugs markets?
- What are the data needs to develop a policy on malaria treatment within the retail sector?
- What pricing strategy should be adopted?

Evaluation of PPP arrangements

- What are the dynamics in these partnerships? What are the barriers to public-private partnerships at country level?
- To what extent is the public sector involved in the planning stages?
- Has government buy-in been a priority? Do governments assume their roles in the creation of appropriate policy and regulatory environment?
- What are the means and mechanism of creating solid PPPs in malaria that leads to equal ownership and risk taking?
- How are partnerships translated at decentralised and operational level?
- What are the means of creating a regulatory and legal environment that maintains government legislative role but also enables involvement of the private sector in service provision?
6. Conclusions

This review presents key strategic options for malaria control for the demand side, the supply side and the policy making level. The cited examples show that several of the strategic options may be implemented at the same time and that they work in a complementary way. It is hence difficult to single out and prioritize any one option as most promising. In addition, cost and health impact data of specific interventions are frequently not available, or only available from small scale pilot studies. While it would have been desirable to prioritize key options for implementation, the evidence base is in reality often insufficient. However, some conclusions can be drawn from this review and are presented in this section.

1. Policy makers need to acknowledge the full extent of service provision by formal and informal private sector providers (PSPs) and integrate them as major actors in health sector development plans and strategies.

This review has summarized the evidence for the key role PSPs play in developing countries, and the fact that for certain disease conditions they are the leading health care providers. PSPs need to be given a prominent place in strategies and action plans on general health sector development, but equally in RBM strategies, ITN strategies and plans of ACT introduction. PSPs need to be involved at the planning and design stage.

The challenge to policy makers is to prioritize areas for public action, taking into account market failures, contexts of widespread poverty, private sector deficiencies, public sector capacity, cost-effectiveness, technological developments and burden of disease.

2. The constitution of multi-sector taskforces at country level can increase private sector involvement and pave the way to PPPs.

Much can be learnt from the Tanzanian ITN scale up, which was largely driven by a taskforce, representing all major constituencies and stakeholder groups, under the chairmanship of the MOH. The taskforce led the development of the national strategic plan for ITNs, the ITN implementation plan and the GFATM application; facilitated, integrated and coordinated all ITN activities in the country; spearheaded the creation of an enabling environment (favourable insecticide regulatory conditions, net quality control, generic demand creation, equity of access, taxation); and liaised with politicians. Taskforces can be instrumental for broadly supported ITN and ACT strategies and a way to initiate PPP arrangements under the leadership of governments.

Governments require well-co-ordinated external support, including subsidized effective antimalarials, in order to sustain PPPs which produce national level health impact.

3. The use of a mix of demand-side and supply-side strategies creates synergies and achieves a multiplier effect.

Interventions with private providers which employ a range of approaches, rather than relying on single strategies, may be more effective. For instance, the Abia project in Nigeria addressed supply not only through training but also through the provision of PPAMs. The demand-side intervention included more traditional mass media and counseling outreach by community health promoters. Increased consumer awareness of drug quality issues is valuable not only for generating demand, but also for creating accountability among the medicine sellers.

4. Informal providers, such as drug shops, are important delivery structures in strategies of scaling up prevention and treatment.

This review presents the importance of drug shops and general retailers in people’s access to malaria prevention and treatment, and as possible entry points for intervention. Drug shops are established suppliers of antimalarials, and their staff have some knowledge to build upon in targeted educational strategies. General retailers use a small number of wholesale outlets, and interventions can be targeted at the most frequently used whole salers. Strategies targeting drug shops and selected whole salers would involve a mixture of training, provision of job aids and regulatory strengthening. Interventions based on the informal sector are complex to scale up to a level sufficient to generate public health impact.
5. Social franchising and accreditation are underused despite their potential for integration into large-scale programmes to address critical illnesses.

The review presents evidence of the capacity of social franchising to provide monitored and quality assured drug outlets. To date, social franchising has been conducted in relative isolation from governments. The ADDO scheme in Tanzania demonstrates that governments can take the leadership in developing accreditation networks. Social franchising has the potential to allow government to expand healthcare provision using for-profit providers, and without the need for high infrastructure costs required for direct governmental provision of care. For rapid scale up, conversion franchising of existing drug shops is the best option, however, the scale usually remains small. Sites and product lines of franchises need to be well chosen to address equity concerns and avoid conflict between franchises and well established pharmacies.

6. Differential pricing arrangements for ACT in public and private sectors are difficult to implement in weak regulatory contexts.

The review shows the complexities of differential pricing of ACT with the examples of Zambia and Cambodia. In Zambia, differential pricing of ACT for public and private sector creates the challenge of preventing drug leakage into the private sector [Mudondo et al., 2005]. Monitoring of the private sector is a challenge for regulatory authorities and this may be inhibiting progress with PPPs. If heavily subsidised public sector ACT is found in the private sector, it could affect Zambia’s negotiated discount pricing arrangement. Social marketing is used for ACT in Cambodia, where pre-packaged artesunate and mefloquine (Malarine®) is distributed through the private sector by PSI. PSI is putting in place mechanisms to monitor the private sector. The examples highlight the difficulties in sector specific negotiated price agreements in contexts of weak regulation and support the idea of a global subsidy for ACT high up in the supply chain. Subsidy at source must be accompanied by synergistic strategies to ensure that low prices are passed on to consumers (using, for example, well publicized recommended retail prices).

7. Social marketing techniques are increasingly used for building informed demand.

Customer information and education are essential to make malaria control interventions work. Social marketing of information, education and behaviour change messages is an effective approach to take customer education to scale. With the introduction of ACT, there is an urgent need to inform the public on issues such as home based management of childhood fevers, approved antimalarial drug brands, etc. Generic campaigns for ITNs and ACT need to be developed, for countries to adapt to the specific context.

8. Commercial sector production and distribution of nets is effective, but insecticide treatment requires PPPs and policy interventions.

The review presents evidence that commercial sector production and distribution accounts for the vast majority of nets in use. Promising strategies for increasing retreatment levels of existing nets are social marketing partnerships for insecticide treatment kit marketing, and the public sector driven annual impregnation campaigns in partnership with NGOs and community groups. Strategies for ensuring treatment of new nets are bundling policies for local factory produced nets, collaborations with wholesalers for bundling of imported factory made and tailored nets, and collaborations with stitchers associations and tailoring workshops for bundling tailored nets. Prices of kits need to be kept low to reduce barriers to retreatment. Customers need to be educated to ask for bundled ITNs or nets.

9. Equity of nets and ITNs needs to be addressed by targeted subsidy strategies.

The review summarizes evidence showing that in many countries, nets, and even more so ITNs, are distributed inequitably. Poor people tend to own lower quality, less durable nets, although equity tends to improve as coverage increases. In order to reduce the gap, vouchers to high risk or vulnerable groups are a measure to improve net affordability. Furthermore, affordability will improve with increased market competition between net manufacturers and the complete abolition of taxes and tariffs for netting items. Net quality may improve as a result of
market competition. Acceptance (redemption) of vouchers needs to be as widespread as possible.

10. Applied and operational malaria research is more important than ever.

The scaling up of prevention and treatment options must be monitored closely in order to orient malaria intervention and financing strategies at country and international level. Frequent process and outcome evaluations are necessary to identify operational challenges and promising practices for replication, and redress inequity and inefficiency. Cost effectiveness analysis needs to be strengthened in order to provide the evidence base for strategic decision making and resource allocation. Research teams need to be multi disciplinary and work across sectors, and comparative research studies need to be promoted.
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Annex 1: Annotated bibliography

1. PUBLIC-PRIVATE PARTNERSHIPS


This report presents the results of a series of country case studies undertaken to assess the impact of public-private partnerships (PPPs) with pharmaceutical companies for improving access to pharmaceuticals in low and middle-income countries. The PPPs either donated drugs or provided them at discounted price. The studies were designed to examine issues of 'ownership' by the national government, integration with the national health system, coordination, implementation and impact. In the analysis, the PPPs are grouped by disease (tropical diseases, including malaria, and HIV/AIDS) rather than by end price of the product.

The main findings for the tropical diseases group is that drug access PPPs have indeed assisted the poor to access necessary drugs. Drug donations, usually linked with elimination efforts, have been of considerable benefit. The donations are not sufficient to initiate and support a full national elimination/control programme, and operational support also needs to be mobilised. However, the donation sometimes helped to catalyse this. A possible risk is that in the long-term they can rule out local competition, particularly if the public sector partner perceives any obligation to use a sole source. Discount arrangements can contribute to a downward pressure on prices in markets where competitor products are also available.

The report looks at the case of Zambia, where Novartis’ Coartem® for malaria was offered at cost price through WHO. While the arrangement contributed to several indirect health system benefits, a key challenge is to ensure that there is a constant supply of drug as the programme is scaled up.

More detailed accounts of the specific country cases are available in separate reports. http://www.hlspinstitute.org/privatesectorinhealth/publicprivate/


Involving the private sector in delivering common goods (such as health) raises a number of ethical and process-related issues. After a general overview of the emerging public-private arrangements in health, the author describes the specific challenges raised by these types of partnerships and proposes a framework to address them.

The ethical challenges include: the lack of global norms and principles in an ever-increasing transnational setting, the danger that the mission of the public sector (health equity) is undermined and that social safety nets are withdrawn, conflicts of interest between the for-profit and the non-profit sectors, the weakening of national and local efforts, and the impact of vertical programs on health systems.

Among the process-related challenges described are: lack of overarching legislation in many developing countries, the beneficiaries’ role in decision-making, ill-defined governance mechanisms, skewed power relationships, issues of sustainability and accountability.

The author calls for the development of global norms and ethical principles, as well as for assistance to developing countries in the development of their own set of guidelines, policies and legislative framework. http://www.health-policy-systems.com/content/2/1/5


In April 2000, the Harvard School of Public Health and the Global Health Council held a workshop on public-private partnerships. The focus was on partnerships seeking to expand the use of specific products with the potential to improve health conditions in poor countries. This book presents the results of the workshop and is a good introduction to public-private partnerships and the numerous
issues that they raise, including ethics and corporate responsibility. After a general introduction to public-private partnerships, the book examines in some detail various illustrative examples of partnerships: the UNICEF/UNDP/World Bank/WHO Special Programm for Research and Training in Tropical Diseases (TDR), the International Trachoma Initiative (ITI), GAVI, as well as philanthropic drug donation programs. The book concludes by looking at the role of the UN, and specifically of WHO, in the context of partnerships.

2. THE PRIVATE HEALTH SECTOR


This resource provides an overview of approaches used to engage the private sector in order to improve access to good quality, affordable and appropriate health services by the poor. It covers: vouchers, insurance and micro-credit schemes, contracting, social franchising, social marketing, working with unlicensed providers, and experience with public-private partnerships for developing infrastructure. The evidence of impact on the health of the poor and on the wider health system is summarised and assessed for each approach, as well as suitability for donor involvement.

In addition, four case studies give more details about the relatively successful examples of the Nicaragua voucher scheme, the Greenstar franchise network (Pakistan), the approach to social marketing and voucher provision for malaria prevention in Tanzania, and on the Cambodian experience in contracting for health services. Each case study contains a brief description of the project and its context, a detailed assessment of its impact and suitability for scaling up.

This resource is based on a review commissioned by KfW to identify the most suitable approaches to promote engagement with the private health care sector in the course of bilateral development assistance.


Written for health professionals, this guide provides a framework and tools needed to develop alliances between public and private health sectors.

It describes how to conduct an initial exploration of a public-private partnership in a given commercial and health environment. It enumerates ways to establish the partnership and identifies roles and responsibilities of each partner. The guide details the activities the partnership should plan in order to achieve the public health objectives it sets.


This guide aims to provide a practical approach to working with private sector providers (PSPs), with a specific focus on for-profit health providers. The book suggests thirteen strategies; these are grouped around the three types of stakeholders (policy-makers, providers, and people) who are the primary focus of interventions, and cross-referenced with the three key objectives (increased coverage, improved quality of care, and control of costs).

The strategies for working through policy-makers include: lowering policy, regulatory and fiscal barriers, introducing legislation and regulation, and set PSP price levels. On the provider side, the strategies are: subsidised marketing of products through retail networks, recruiting PSPs into accredited networks, contracting, training and incentives, and payment mechanisms. Finally, working with consumers involves: expanding demand, introducing exemption schemes, introducing measures to protect consumer rights, providing community education and publishing information on prices.

For each strategy the guide presents a description and a case study, followed by cautions, pitfalls and evidence
gaps. Contextual features which facilitate a particular strategy are also identified. The final chapter looks at approaches to help decision-makers in selecting the strategies that are most appropriate to the local context.

http://www.options.co.uk/images/Private-Sector-Guide-full-version.pdf


This paper argues that the traditional distinction between public and private providers (borrowed from the context of advanced economies) does not reflect adequately the complexity of health care markets in the developing world. This failure to correctly define and conceptualise these ‘pluralistic’ health sectors has in turn led to inadequate interventions that do not take into account of the reality on the ground, and therefore are bound to fail.

While it is widely recognised that a high number health transactions in both low and middle income countries take place outside the public delivery system, responses tend to fit a simplistic pattern of ‘public vs private’. This dualism ignores that what is called ‘the private sector’, in reality is a marketised but unregulated domain of multiple providers ranging from professionally certified medical specialists to drug pedlars and traditional healers.

The authors suggest that the various actors should be categorised as part of the organised or unorganised health care economy. The concept of organised health care captures the idea of regulatory influence in both the public and private sectors. In many countries, a small organised sector co-exists with a much larger unorganised economy. Often the extent and significance of the unorganised health care market (especially as a resort of the poor) has not been recognised by policymakers and planners. Against this background, the authors argue, it is not easy to spell out clear policy prescriptions on engagement with the private sector. This will depend on better analysis of how poor people use unorganised health care markets, of the strength and quality of different kinds of providers, and of the capacity of the government to develop and implement effective regulatory and contracting mechanisms. In addition, any approach needs to move beyond the dualism of public versus private, and work creatively with messy and sometimes contradictory realities. In conclusion, practical implications for the work of the Global Fund to Fight AIDS, TB and Malaria are briefly examined.

This paper was presented at a workshop in support of the preparation of the 2003/04 World Development Report held in Oxford in November 2002.


In this paper analysis of data from nationally representative surveys in 26 African countries is used to compare equity of coverage of (a) EPI immunisation, (b) any-net, (c) ITNs (ever-treated nets), and (d) untreated mosquito nets (never-treated nets). The underlying assumption of the research is that ITNs are mostly distributed through public health programmes and projects, while untreated nets are sold through local unsubsidised commercial markets.

The findings show that at the time the surveys were conducted, an estimated 87% of the 8.4 million children protected by nets were using untreated nets, with a ratio between untreated and ever-treated net coverage of seven to one. Further, they show that ITN coverage was biased towards richer (or less poor) households. Indeed in some countries of West Africa untreated-net coverage was even more equitable than EPI systems. From the figures it is possible to imply that, in spite of being less protective, untreated nets are currently preventing a much larger number of child deaths in Africa than treated nets. The researchers suggest that the public health value of commercial net markets has been underestimated, and that commercial markets have so far contributed more to equitable and sustainable coverage of mosquito nets than previously thought.
In challenging the assumption that poor people own publicly-delivered, subsidised nets, the results of the study have important policy implications, especially where public sector resources are limited. Further research into delivery systems is therefore needed in order to guide both the international debate and national-level planners.

### 3. TOOLS FOR MALARIA CONTROL


This report recommends economic mechanisms to make artemisinin combination therapies (ACTs) more widely accessible, while at the same time preserving their effectiveness for as long as possible.

*Falciparum malaria is becoming increasingly resistant to chloroquine, and artemisinins are the only first-line antimalarial drugs appropriate for widespread use that work against all chloroquine-resistant malaria parasites. Increasingly wide use of locally-produced artemisinin monotherapy in Asian countries carries high risks of generating resistance. And if resistance to artemisinins were to develop, the death toll from malaria would rise even higher.*

*Artemisinin-based combination therapies on the other hand minimise the risk of creating resistance, but for this to happen they must be used as first-line treatment as widely as possible. However, these drugs cost about 20 times more than chloroquine, making them unaffordable to both governments and customers in most malaria-endemic African countries, and low demand is in turn keeping prices high. In Asia, local production of monotherapy must convert to ACT production.*

*The report makes the practical recommendation of subsidising the difference in cost between inexpensive but ineffective antimalarials, and effective ACTs, and calculates that an adequate ACT global subsidy would be US$300-500 million. This would stabilise demand and create incentives for ACT production, resulting in lower prices. It further recommends the establishment of a mechanism for centralised procurement of antimalarial drugs, where the procurement agency would buy ACTs directly from manufacturers at competitive prices and then resell them to countries at a lower subsidised price. The subsidy should be applied in a way that does not diminish access to antimalarials, taking into account the important role of private sector distribution systems.*

**http://books.nap.edu/catalog/11017.html**


Malaria disproportionately affects the poorest of the poor populations, who are also harder to reach because of financial and other types of barriers. This is substantiated by a growing body of evidence showing that many of the public health interventions that were designed to aid the poor are not reaching their intended target. However, in order to achieve the intended impact, malaria control interventions must reach these poorest segments of populations.

While there have been conflicting findings as to whether malaria incidence differs between the poor and less poor, a number of studies have shown that there are significant disparities in both the consequences of malaria and in the use of malaria prevention and treatment services between the least-poor and the poorest quintiles.

The cost of commodities (i.e. bednets and drugs) is certainly, and not surprisingly, a key contributor to these disparities. However there may be other, more complex factors (i.e. cultural practices, distance from health services, caretakers’ education) that could play a substantial role in lowering access but have not yet been fully researched. In addition, there has been no definitive evidence to date indicating that any of the existing approaches for malaria interventions are more or less effective in reaching the most poor. Evidence suggests that providing treatment only through public health facilities may fail to reach the poor, but little is known on whether alternative approaches work better.
The authors argue that further research into the factors that contribute to disparities might provide insights into how the poorest can be reached. Further, malaria control efforts should begin to incorporate approaches relevant to equity in program design, implementation, and monitoring and evaluation.

http://www.ajtmh.org/cgi/reprint/71/2_suppl/174


Since the early 1990s many operational projects have been implemented with varying degrees of success. The main lesson learned is that though the technology may appear simple, implementing programmes that survive beyond the short term is not. There is no blueprint that can guarantee a successful project, but there is a wealth of operational experience from previous projects which have adopted a wide range of implementation strategies.

This handbook is designed to be a practical decision making tool for project managers. It covers the essential elements of planning, implementing and monitoring treated net projects, and is illustrated with examples from more than 30 projects in 16 countries. Through this handbook, project managers can start from a position of relative strength, based on past experience, and can rapidly evolve implementation strategies appropriate to local needs.


A number of effective interventions are available to improve the prevention and treatment of malaria, which are also excellent value for money in terms of the health gains achieved per dollar spent. These interventions include: 1) interventions to improve case management, such as pre-packaging of drugs and improving access to second- and third-line drugs for treatment failures; 2) chemoprophylaxis or intermittent presumptive treatment during pregnancy; 3) vector control through insecticide-treated mosquito nets and indoor residual spraying. However, the uptake of these interventions remains low. This publication uses economic analysis to review knowledge on why this is the case. It assesses influences on both the demand (patient behaviour) and supply (public and private providers) sides, to identify the factors that limit the availability and effective use of interventions, and the opportunities to improve both treatment and prevention.

There are good reasons for governments to intervene in malaria control, related to affordability and equity concerns, and the presence of market failures. At the same time government failure also needs to be addressed, and improving malaria case management requires measures to strengthen the health system as a whole. However, since the majority of malaria episodes are treated at home with drugs purchased in a variety of private outlets, it is also important to improve the quality of treatment by taking into account the incentives and information that influence user and provider behaviour.

The authors conclude by calling for a wider use of economic analysis - which would require the strengthening of health economics capacity at country level. As well as a set of tools for understanding the various influences on the behaviour of providers and consumers, through economic evaluation the approach offers a systematic way of comparing the costs and consequences of interventions in order to improve the allocation of resources.


Malaria cannot be dealt with as a single and uniform problem throughout the world, susceptible to one global control strategy alone. The choice of control methods appropriate for a specific community or region requires an understanding of how various factors affect the local epidemiology of malaria, such as for example: deforestation...
and population movement, local perceptions of the etiology of malaria and its causes, the manner in which people decide whether a given treatment of preventive measure is efficacious, patterns of treatment-seeking behaviour during episodes of illness, gender relations, and the role that the community as a whole plays in planning, implementing, and evaluating malaria control programmes. All these factors are examined in this book, which aims to re-emphasize the complex interrelationship between malaria and behavioural and sociocultural factors, and the need to make these factors a central part of malaria control strategies. The volume is accompanied by an annotated bibliography on the key social science literature on malaria.


This handbook will be useful for manufacturers of mosquito nets in developing countries. It describes, in accessible language, practical test methods to be conducted at the textile manufacturing site for the measurement of yarn and fabric properties in order to enhance the quality of nets. The test methods included in the handbook are: yarn count, yarn skein shrinkage, fabric mass per unit area, fabric mesh count, fabric dimensional stability, fabric air permeability, and fabric site.


Insecticide-treated nets are one of the most cost-effective ways of reducing the burden of malaria, with an estimated cost per Disability Adjusted Life Year (DALY) averting of under $50. While substantial evidence exists, most studies have been undertaken alongside trials or small scale research studies, which leaves a need for better estimates of the true cost-effectiveness of such programmes in practice.

This paper attempts to address this lack of 'practical' data by looking at the cost-effectiveness of a specific social marketing ITN intervention in terms of cost per ITN distributed and cost per treated-net-year. The intervention took place in Malawi, started in 1998 in Blantyre district and was subsequently expanded nationwide. The costs were taken from financial expenditure data collected over the course of the first five years of the programme. In this time, a little under 1.5 million ITNs and 300,000 re-treatment kits were sold. Costs and effects were measured as cost per ITN distributed and cost per treated-net-year.

The average economic cost per net delivered and the average cost per treated-net-year, over the five years, was found to be $2.63 and $4.41 respectively. This compares favourably to other studies which have offered estimates of $8 and $4. The study also showed evidence of economies of scale, with costs falling considerably from year one to year five.

These findings seem to suggest: 1) that it may be possible to achieve these high levels of ITN distribution and rapid increases in coverage, including vulnerable groups, with a combination of standard social marketing techniques and highly-subsidised ITNs through both the commercial and formal health care sectors; and 2) that this may be achieved while keeping unit costs down and achieving increasing returns to scale. The authors conclude by recommending that further economic evaluations of large-scale programmes are carried out.


This paper presents an overview of the main options for improving antimalarial drug policies in sub-Saharan Africa, particularly regarding the affordability and financing of artemisinin-based combination therapies (ACTs). It is undisputable in spite of their current high costs their use needs to be secured, at the same time ensuring that the development of resistance is held back as long as possible.
Already resistance to cloroquine has made this treatment useless in many areas, and resistance to sulfadoxine–pyrimethamine (SP) is becoming widespread. So what can sub-Saharan countries do?

The paper begins by discussing current prices of antimalarial drugs, and projections for the future. It then looks at current drug financing mechanisms and at the experience of other priority health programmes (e.g. DOTS-Plus) that have worked to improve financial access to drugs. Based on these lessons, the paper attempts to provide some workable solutions.

No single strategy is likely to solve the problem of ACT availability. A pluralistic approach using several strategies to serve different needs and different groups is likely to achieve the best results. In any case an integrated and collaborative approach by all stakeholders will be necessary.

The affordability and financing of drugs is also directly related to the ways in which drugs are used, so current behaviour patterns in the use of antimalarials by consumers and caregivers must be taken into account when considering treatment policies.

The public sector will have to take the lead in ensuring access to ACTs, in order to diminish possible negative effects of private sector marketing (high prices, misuse leading to resistance). The government’s first strategy should be to optimise subsidies and avoiding the major part of them going to urban centres and better-off populations. However, sustained financing can only be ensured with donor support. Donor consortia should be set up, and new ways of working together devised. For example, a malaria drug facility could be set up, perhaps integrated with existing mechanisms such as the Global Drug Facility. International and partner collaboration is required to increase the market size, and through pooled procurement mechanisms lower prices can be achieved. Increased financial support must also be a part of a comprehensive strategy that addresses all of the health systems issues.

An annex giving a price overview of drugs commonly used in malaria control programmes in the regions in the world is included.

Malaria rapid diagnostic tests (RDTs), sometimes called ‘dipsticks’ or malaria rapid diagnostic devices (MRDDs), assist in the diagnosis of malaria by providing evidence of the presence of malaria parasites in human blood. They have the potential to provide accurate diagnosis to all at risk populations for the first time, especially by reaching those unable to access good quality microscopy services.

This booklet is aimed at health planners and implementers, and provides information on what RDTs are, their potential uses, their role in malaria management, as well as considerations for choosing an RDT product, issues of transport and storage, and of quality assurance.


As antimalarial drug resistance increases, it is important to know whether patient adherence is a major determinant of the therapeutic response to antimalarial drugs, especially as most treatments are taken at home without medical supervision. This article reviews the current knowledge on patient adherence, interventions to improve drug usage, and the effects of patient adherence on therapeutic response. The authors found that available data was seriously inadequate, and call for more research to be carried out. They also manage to draw some general conclusions.

Community based studies generally indicated low levels of conformity to national recommendations for malaria treatment. This can be ascribed to the fact that treatments
are often bought from untrained shopkeepers, where the choice of drug and amount purchased are limited by the cost of the drugs and the training of the provider. However, when patients were given free drugs at the correct dose by a trained health provider, levels of adherence were much higher, especially if careful verbal instructions had been given. There appears to be a trend towards higher rates of adherence to drug regimes known to be efficacious than those that are ineffective. In particular, there is evidence of high levels of adherence and effectiveness to 3-day regimes of artemisinin combinations, compared with the 3-day regime of chloroquine which is increasingly ineffective. This finding should help allay fears that the rapidity of action of ACTs would actually encourage poor adherence.

The authors also make the point that where there is high resistance to the recommended antimalarial, it is entirely rational for the patient or carer to choose not to use the drug, or to use it for a short time before looking for an alternative. This may reinforce the behaviour of trying out many different drugs for short durations, and is likely to reduce trust in that medicine, the provider, and the health system.

4. STRATEGIC OPTIONS FOR ENGAGING THE PRIVATE SECTOR


This document reviews 15 interventions to improve child health and malaria-related activities of Medicine Sellers or Patent Medicine Vendors (PMVs) in Africa. It stemmed from RBM’s recognition that - whether desirable or not - much malaria treatment is based in the home, with medicines acquired from informal private providers or medicine sellers. Such care is usually affordable, accessible and potentially beneficial, but is generally of poor quality, if not inappropriate. It is therefore important to ensure that PMVs have the capacity to provide safe and appropriate medicines in the correct amounts.

The review finds that interventions involving medicine sellers offer immediate and practical opportunities for improving malaria treatment. Interventions to improve sales practices and to train PMVs to be active health care providers have worked. However it is also clear that medicine seller and community education alone will not achieve all the improvements in malaria management that are required (e.g. because of the poor quality of drugs) and a combination of approaches in addition to quality assurance and training will be most effective. Among its conclusions, the review cautions that where quality assurance is impossible, alternative strategies must be found, as the informal private sector will always continue to play a major role in the delivery of health services.

This report includes an annotated bibliography with all project documents, and an outline of the main intervention components as seen in the 15 reviewed studies. http://rbm.who.int/partnership/wg/wg_management/docs/medsellersRBMmtgsubcommitteereport.pdf


A census of retailers selling drugs, documenting the type of shops, the products stocked and their sources of wholesale supply, was undertaken in the rural areas of four Tanzanian districts. The aim was to identify the risks posed by retail sector malaria treatment, but also the opportunities for improving access to prompt, effective treatment.

The study found that drugs were widely available both from general retailers and drug shops. Almost all outlets stocked drugs such as antipyretics/painkillers, while only a third of general retailers who stocked drugs also had antimalarials (usually chloroquine alone). On the other hand a wide range of antimalarials was stocked by nearly all drug shops. These generally used dedicated drug suppliers, while general retailers tended to use general wholesalers, who stock a wide range of other products. The study also showed that retail drug providers were relatively accessible compared to health facilities: there was one general
retailer stocking drugs for every 310 people, and one antimalarial retailer for every 834 people, compared with one health facility for every 4368 people.

The researchers found considerable illegal stocks of numerous types of drugs in drug stores, indicating weak regulation, and with obvious risks to the population. A further implication is that illegality may compromise the potential for public-private collaboration, as government authorities cannot openly collaborate with retailers engaged in an illegal activity.

However the study also showed that being so widespread, retail drug provision could become an effective drug distribution channel, with opportunities for improving malaria treatment. According to the authors, the large number and heterogeneity of shops (also difficult to document) and the high turnover in general shops make large scale provider training interventions costly and difficult to sustain. This seems to suggest that retail quality may be improved more cost-effectively by acting on demand through consumer education and by modifying the chemical quality, packaging and price of products that enter the retail distribution chain. In addition, targeted training could be provided to drug shop staff (who usually has some previous education that could be built upon) and to the most frequently used wholesalers, together with regulatory strengthening.


This report describes the design, implementation, and results of two interventions in Nigeria and Uganda aimed at improving the practices of private drug sellers in malaria treatment for children. The interventions were modelled on approaches developed in Sub-Saharan Africa and elsewhere, and adapted to the specific context.

The Nigerian intervention utilised a participatory, peer-educator training approach coordinated with the introduction of pre-packaged, age-specific malaria drugs. These activities were supported by a comprehensive social marketing and behavior change communication (BCC) strategy, including mass media promotion of new pre-packaged antimalarials and the medicine sellers displaying shop identifiers from the training. In Nigeria the community played a large role, both as a partner in implementation and as the target of behavior change messages and activities.

In Uganda the Education, Negotiation, and Persuasion (ENP) approach was identified as the most appropriate for the setting. It consists in obtaining specific information on current practices among the target group, and using that as a point for negotiating changes to correct inappropriate practices. This is then formalised with a ‘contract’ stating that the participant accepts the new practices.

Both interventions reported significant improvements in drug vendor practices, particularly in the provision of the correct drug in the correct dose for malaria to caregivers of children under five with fever. Of the two approaches, the Nigeria intervention has shown the greatest promise for broad implementation. In the Ugandan approach the dependence on government health workers is a key factor that might turn either into a strong advantage or a substantial drawback.


This article presents a summary of the extensive Tanzanian experience with ITNs, and of the process that led to a national scale-up of ITNs. In 2000 Tanzania launched a national ITN strategy (NATNETS) to take ITNs to scale. The core concepts of NATNETS are: 1) increased demand creation for ITNs; 2) a national public-private partnership for developing a sustainable domestic commercial ITN market; and 3) targeted subsidies aimed at high-risk groups. Thanks to the NATNETS initiative it is expected that Tanzania will become the first large African country to meet the Abuja target for ITN use. The article reviews some of the

Social franchising is an adaptation of the successful commercial model to include social, rather than commercial goals. Social franchising programmes create networks of private health practitioners which offer a standard set of services under a shared brand.

This article provides an introduction to the concept and operation of franchising health services in developing countries, based on experience from family planning service franchises. It aims to support decision-making when designing and implementing health-related social franchises in developing countries. The author begins by defining the types of commercial and social franchise, introduces the theoretical model of franchising, and concludes by discussing the implications of the model, both at the theoretical level and with respect to specific areas of franchise operation.


Experience in several countries has shown that the public sector can be an effective mechanism for rapidly increasing ITN coverage of vulnerable groups, that the private sector working with the public sector can be an efficient channel for distributing and marketing ITNs and targeting subsidies, and that commercial ITN markets are flexible and can expand rapidly in response to increased demand.

This revised framework represents the consensus of the Roll Back Malaria Partnership Working Group for scaling-up ITNs (WIN) and aims to provide a systematic basis on which to scale up ITN programmes. The document examines the lessons learnt from current ITN programmes and reviews the options for maximising the impact of public subsidies. The framework is intended to support country-level RBM partnerships in the development and implementation of national strategies and programmes, and for coordinating the activities of different agencies and sectors. A two-pronged approach is advocated: 1) short-term strategies, with significant public subsidy, to increase ITN coverage rapidly among those most vulnerable to malaria; and 2) longer-term design and implementation of sustainable strategies and systems that maintain high coverage. This phase relies on the development of commercial markets, and may be preceded by a transition phase of ‘market priming’. The essential underlying element of the framework is the coordination of public and private sector activities.

A great part of this document deals with the first priority of public subsidies for achieving rapid ITN scale-up, and discusses the advantages and disadvantages of the most commonly used approaches. The second priority (long-term sustainability) requires commercial market growth of the kind seen in Tanzania (see Magesa 2005). Such growth requires public sector stewardship, not only through the provision of an ‘enabling environment’ (e.g. the removal of taxes and tariffs), but also through demand creation and behaviour change campaigns.


issues that were crucial for this process, and draws lessons that might prove useful to other countries.

The development of a well coordinated public-private partnership, effectively supported by both Ministry of Health and donors, was a key factor. All the stakeholders acted in a concerted way through the national ITN Task Force and integrated all ITN activities in the country. Removing all taxes on nets and netting also led to a substantial decrease in retail prices, increase in demand for nets, and allowed the local manufacturers to develop the market. As household coverage rates increase overall, it is expected that they should now rapidly increase also in the lower socio-economic quintiles and harder-to-reach rural areas. The article also looks at the successes of the voucher scheme set up to reach some high-risk groups (e.g. pregnant women and newborns) – an approach chosen over direct distribution of free nets. One of the challenges for Tanzania will be to bring Long-Lasting Insecticidal Nets as quickly as possible onto the market. In the meantime a policy of bundling all nets with insecticide treatment kits has been agreed by all major net manufacturers.

http://www.malariajournal.com/content/4/1/34

This document is the outcome of a workshop convened in May 2003 by the Roll Back Malaria Working Group on ITNs, and attended by representatives from 12 African ministries of health and national malaria control programmes, major donors, as well as nongovernmental and private sector organizations, in order to share successes and lessons about targeted subsidies for ITNs. The document aims to advance the understanding of how the principles of the 'Strategic Framework for Coordinated National Action' can be applied within national, district and community-level contexts. These principles are outlined in Part 1.

Part 2 looks at the practical issues of programme implementation that emerged from the workshop, such as the key variables (e.g. maturity of the market; audience segmentation; health system issues), the various parts of a subsidised programme and generic planning guidelines.

Part 3 summarises four approaches to targeted subsidies for ITNs (free distribution, sale at subsidised price at public sector clinics or the same through community-based groups, and vouchers). Part 4 cover a number of cross-cutting issues that emerged during the workshop, such as government priorities, the possibility that donor interest in malaria might diminish, the need to look at the complexities of behaviours, and the importance of monitoring & evaluation.


This manual is aimed at district health management teams in malaria-endemic areas, and gives step-by-step instructions on how to implement vendor-to-vendor (VTV) education, a low-cost activity to improve private retail drug outlets’ compliance with malaria treatment guidelines. The intervention trains wholesale vendors to communicate guidelines to retail drug outlets in a district. Guidelines are communicated to these outlets using two job aids (posters). One job aid is for the outlet attendant or shopkeeper to refer to when selling anti-malarial drugs, and the other is to inform clients about the recommended drugs.

http://www.qaproject.org/pubs/pubsvendor.html

USAID. Utilizing the potential of formal and informal private practitioners in child survival: situation analysis and summary of promising interventions. USAID, 2002.

Drug vendors, pharmacists, licensed and unlicensed doctors, nurses, midwives, and traditional healers are popular sources of treatment for childhood illnesses, especially diarrhea, acute respiratory infection, and malaria, which combined are estimated to cause over half of child mortality in developing countries. It has been widely documented that some of these private providers offer sub-standard, if not harmful, health services. However, the reality is that such providers are in demand by the community and are treating many sick children, but for various reasons they tend not to be involved in national health programs.

After reviewing existing information about the role of private practitioners in child health, the paper summarises a number of field interventions that focus on improving the quality of private practitioners’ treatment practices: regulation, motivation, education/persuasion, negotiation, and combined approaches. This should be followed by interventions to ensure that the target behaviour continues after the intervention, for example through ‘change agents’ offering performance feedback, motivation, and support.

The paper concludes that the debate regarding the role of public versus private sector needs to move beyond comparing the advantages and disadvantages of services provided by either sector to finding practical ways to work together constructively, and makes a number of recommendations regarding national health policies, child health programmes, and on interventions to utilize the potential of private practitioners.


This paper documents experiences of targeting subsidies on ITNs, net treatment kits and retreatment services (ITN products), compares the alternative approaches, draws some lessons and identifies current gaps in knowledge.

The researchers obtained data on 19 models for targeting ITN subsidies from 11 countries (two in Asia - Vietnam and Cambodia - and the rest from Sub-Saharan Africa). The paper presents a comprehensive overview of these models, looking at all aspects of the schemes from the type of subsidy delivered (e.g. direct subsidy on products or an indirect subsidy via vouchers), the stage of implementation and scale (both varied), approaches to targeting (mainly on the basis of biological vulnerability, followed by economic vulnerability), what was being subsidised (bundled nets in most cases), the value of the subsidy, and the approaches to retreatment of nets. The researchers also consider the roles of key players, alternative channels for delivering the subsidy, incentives for health workers, voucher redemption mechanisms, complementarity with other activities and sectors, monitoring and evaluation, and issues of sustainability and going to scale.

This overview shows that a number of alternative models are being implemented in different settings, which offers the opportunity to increase the evidence base. However, numerous gaps in knowledge still exist. In particular there is limited evidence on: how to target economically vulnerable groups; the impact of programmes on different socioeconomic strata; the issue of retreatment of nets, approaches to redemption of voucher schemes, and how variations in subsidy will impact on coverage. In addition, large scale financial data is not available at this stage. All these gaps point to the need for good quality, thorough M&E, which in turn calls for a closer association between operational programmes and researchers, and adequate funds for M & E.
Partnerships for malaria control: engaging the formal and informal private sectors