

# Case Management of Childhood Illnesses in the Private Health Sector

A review of models of care  
and their effectiveness  
in reducing childhood  
diarrhea, malaria,  
and pneumonia

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## Summary

Over the past two decades, marked progress has been made in reducing preventable child mortality. However, there is a lack of summarized evidence about what works and what can be done to accelerate the reduction of child mortality. In particular, the private health sector's role needs further exploration—including which models might be most effective, and which interventions show promise in delivering high quality services and ensuring program sustainability. As a first step in responding to these evidence gaps, the USAID-funded Sustaining Health Outcomes through the Private Sector (SHOPS) Plus project conducted a review of peer-reviewed publications and gray literature to gather evidence of integrated approaches to the management of childhood illness (including diarrhea, pneumonia, and malaria) implemented by the private sector. This brief summarizes the findings from the full report available on the SHOPS Plus website. The findings from this report are being utilized to inform a collaborative Child Health and Nutrition Research Initiative exercise, which will help to identify research priorities to advance the effective prevention, management, and treatment of childhood illness through private sector approaches or partnerships.

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Keywords: Private health sector, child health, childhood illness, diarrhea, malaria, pneumonia

Photo: Jessica Scranton

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# Global Context

The past two decades have seen tremendous progress in reducing preventable child and maternal mortality. Since 1990, the global under-5 mortality rate has declined by more than half, dropping from 90 to 43 deaths per 1,000 live births. This progress has been uneven, however, and 5.4 million children under 5 still died in 2017. Childhood pneumonia kills approximately 2,400 children per day across the globe (UNICEF 2018b). Diarrheal disease is the second leading infectious disease-related cause of death in children under 5, killing an estimated 525,000 children per year (WHO2017). Young children remain the most vulnerable to malaria, resulting in roughly 285,000 malaria-related deaths in children under 5 throughout Africa in 2016 alone (WHO 2018). In addition, nearly half of all deaths in children under 5 are attributable to concomitant malnutrition, whereby diminished nutritional status and stunting put children at greater risk of infection, increase the frequency and severity of illness, delay recovery, and undermine development (UNICEF 2018a).

Since the 1990s, international actors have advanced the development and implementation of the Integrated Management of Childhood Illness (IMCI) strategy and other integrated child health service delivery strategies. Although not uniformly applied across all country settings, IMCI and other integrated approaches generally recognize that

reducing preventable childhood illness and death requires a focus on the well-being of the whole child. They pursue this focus through clinical and nonclinical services provided by families, communities, and health facilities.

## Rationale

Every day, millions of parents seek health services for their sick children, and the private sector is often the first point of consult. Private sector health facilities—such as community-based drug shops, pharmacies, nurses' and doctors' offices, health centers, and hospitals—are often more accessible than public facilities. Existing evidence, including a recent review of Demographic and Health Survey (DHS) data from 24 countries conducted by the USAID-funded Sustaining Health Outcomes through the Private Sector (SHOPS) Plus project confirms that in many countries private sector health service points are an important source of care for caregivers seeking sick child care outside the home. As such, there is increasing recognition that the private health sector—including a diverse range of commercial, nonprofit, and faith-based actors operating health services and distributing health products outside government structures—has a key role to play in strengthening and scaling the delivery of child health interventions.

Despite substantial international investment to improve child health, a lack of summarized evidence about what works and what can be done to accelerate progress toward reducing child and maternal mortality persists. In particular, the private health sector's role needs further exploration, including which models might be most effective, and which interventions show promise in delivering high quality services and ensuring program sustainability.

In response to this need, SHOPS Plus conducted a review of peer-reviewed publications and gray literature and summarized existing evidence of integrated approaches to the management of childhood illness (including diarrhea, pneumonia, and malaria) implemented by the private sector and other nongovernment entities. The review sought to assess the structure and effectiveness of these models in order to create an evidence-based summary of what works to improve child health when delivered by the private health sector. The findings from this report are being utilized to inform a collaborative Child Health and Nutrition Research Initiative exercise, which will help to identify research priorities to advance the effective prevention, management, and treatment of childhood illness through private sector approaches or partnerships.



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*A child waits outside a private clinic in Uganda.*

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# Methods

SHOPS Plus embarked on a two-phase literature scoping review with the purposes of (1) defining the scope of a private sector-focused literature review for child health case management, (2) performing a targeted search for published studies, (3) conducting a review and extracting lessons from available evidence, and (4) synthesizing findings in case studies and other usable formats to inform global child health stakeholders. A Phase 1 initial database search yielded 162 resources and two key findings: (1) formal evaluations of private sector case management approaches for common childhood illnesses appear to be extremely limited, and (2) there is minimal data demonstrating whether and how private sector child health programs can lead to sustained use of and improvements in child health services.

Based on the findings from Phase 1, a Phase 2 scoping effort was conducted with a focus on retrieving additional gray literature and project reports. Altogether, the SHOPS Plus team sourced 853 pieces of published literature (162 in Phase 1 and 691 in Phase 2), plus an additional 359 pieces of gray literature, for a total of 1,212 materials for full review. Papers that were not freely available in full text; did not discuss an intervention deployed through the private sector; did not involve case management of diarrhea, malaria, pneumonia, or respiratory infection; or did not focus on children under 5 were excluded. This resulted in 114 papers for further analysis. All 114 papers were reviewed and summarized in a project management index. Following key expert interviews, review by external stakeholders, and sourcing of citations found in key papers, additional documents were added to the project management index. This gave the authors a total of 126 published and gray materials for full analysis.



# Findings

Of the 126 published papers and gray materials reviewed, 55 focused on interventions dealing with malaria, 39 focused on interventions addressing diarrhea, and 32 discussed integrated approaches to childhood illness that included at least two childhood illnesses. These findings, including the lack of pneumonia-specific private sector models, are similar to findings from other systematic reviews sourced as part of this effort. There were no papers that discussed treatment of childhood pneumonia as a stand-alone intervention, perhaps due to the fact that pneumonia interventions were typically described as part of a larger package of child health services included in private sector IMCI efforts.

## Malaria case management

Of the 55 papers covering malaria interventions, the vast majority discussed interventions involving private medical vendors or other community-based dispensing outlets and almost half of the interventions included some form of subsidization of antimalarial commodities. Some resources highlighted negative findings or challenges that are important to consider in future interventions. For instance, evidence shows that further training may be needed to ensure that private providers understand the dangers of under-dosing or nonadherence to antimalarial therapy. The following is a summary of key findings related to malaria case management in the private sector.

### **The private sector is an important source of first consultation in the care of febrile children.**

Several studies and implementation experiences confirmed that the private health sector, particularly at the community level, is a first source of consult for caregivers of children exhibiting malaria symptoms. Several papers conclude that private medical vendors and other community-based drug dispensing outlets could serve as a critical source of care for febrile children.

### **There is a need for further evidence on interventions that integrate private providers into national-level child health management.**

Although several papers outlined how improving quality of care in private facilities could work to increase trust and collaboration between public and private health sector actors, none specified how private providers could be more systematically included in national malaria control strategies. More evidence is needed to document public-private collaboration efforts and how private providers can be more fully integrated into national-level child health programs.

### **Large-scale provider training efforts can improve provider knowledge and practice related to childhood malaria.**

Although the effectiveness of provider trainings in improving clinical performance varied across studies, several implementation

experiences involving training of private providers on childhood malaria protocols demonstrated that clinical tasks—such as stocking amodiaquine medicines and asking questions about patient age, duration of illness, and previous treatments—were all improved with large-scale, private-provider trainings. Further, studies in this review demonstrated that district health initiatives focusing on training of private medicine vendors, when paired with traditional public health information campaigns and simple information, education, and communication materials, can lead to measurable improvements in private-provider treatment practices to address childhood malaria at the community level. Studies found that interventions using text messaging and other electronic platforms of knowledge enhancement did appear to improve dispenser knowledge of childhood malaria treatment protocols, but did not discuss whether or how that information was communicated or transferred to improve caregiver knowledge.

**The use of malaria rapid diagnostic tests for diagnosis at private sector outlets can improve the prescribing behavior of private drug dispensers.** Artemisinin-based combination therapy (ACT) consortium studies demonstrated that malaria rapid diagnostic tests (mRDTs), when deployed with effective provider trainings, can improve dispenser prescribing behavior and reduce the overuse of antimalarial medications. In Ghana, delivering mRDTs via licensed chemical shops resulted in improved provider prescribing behavior for clients without malaria, while maintaining appropriate provider prescribing behavior for those with malaria.

**Privately accessed mRDTs may be more likely to be used when they are provided free of charge to the client.** Although it was demonstrated that private sector outlets can increase the availability of mRDTs, evidence demonstrates that they are much more likely to be used or accessed when provided free of charge at the point of care. This is a concern when considering whether privately delivered models of care are sustainable in the absence of commodity subsidization by donors.



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*A child receives a mRDT in Tanzania. Use of such tests at private sector outlets can improve prescribing behavior of private drug dispensers.*

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**The Affordable Medicines Facility-malaria has positively impacted the availability and price of antimalarial drugs and the effectiveness of treatment.** Several studies demonstrated that the Affordable Medicines Facility-malaria (AMFm), a financing mechanism intended to expand access to affordable and effective antimalarial medication, has significantly increased the availability of ACTs in the private health sector. These studies conclude by emphasizing the need for further exploration of quality of care among private providers benefiting from the AMFm program, including appropriate consultation practices and use of malaria commodities. Where mRDTs were used, there was a reduction in the dispensing of antimalarials to clients without malaria, and no increase or decrease in appropriate prescription of antimalarials to those with confirmed malaria.

**Public-private partnerships are essential for achieving improvements in the scope and quality of private sector malaria approaches.** Several studies demonstrated that an appropriate mix of technical, management, and commodity-related solutions is needed to ensure effective introduction of malaria diagnostic and treatment options in the private health sector. Authors of these papers conclude that public-private partnerships are essential for delivering appropriate training, incentives, regulation, supervision, and communication with private providers.

**Ensuring the quality of privately delivered care is a top concern.** Numerous studies demonstrated that although interventions with private sector providers can improve provider knowledge and prescribing behavior, significant quality gaps remain. Further training is needed to ensure private providers understand the dangers of overprescribing antimalarial medications, under-dosing, and/or nonadherence to therapy. One study found that the introduction of mRDTs can reduce unnecessary use of antimalarials, and, in turn, create an increase in the unnecessary prescription of antibiotics.

**Scale up and sustainability are a challenge when projects rely on subsidized inputs.** The large, systematic review of malaria programs profiled found that while mRDT access can improve case management of febrile illnesses, and that intensive interventions typically led to better outcomes, it is highly unclear if successful pilot interventions can be scaled up or sustained at a national level. In studies demonstrating success of a project in one country or geographic setting, the factors that led to that success did not lead to similar outcomes in other settings. For example, while there is evidence that lengthening provider trainings can improve uptake and adherence to antimalarials, in Nigeria, extending the length of provider trainings did not appear to have any impact, and in Myanmar, shortening the length of trainings had a more pronounced effect. It is important to note, however, that adherence depends on several factors beyond provider recommendations—such as patient understanding. In Tanzania, increasing mRDT subsidies to reduce out-of-pocket costs to clients had no impact on uptake—despite these factors increasing positive outcomes in other settings.

## Diarrhea case management

Of the 39 papers describing diarrhea-focused interventions, nearly 70 percent focused on programs in Asia, a quarter focused on programs in West Africa, and several discussed interventions in East Africa. As with malaria, the majority of these interventions focused on private medicine vendors or other community-based drug dispensers rather than clinical providers; however, several papers also discussed interventions targeting diarrhea treatment among private physicians and hospitals, community-based organizations, community health workers, and nursing facilities. Below is a summary of key findings related to diarrhea case management.

### **ORS and zinc projects relying on subsidized products may not be scalable or sustainable.**

Many of the reviewed projects used subsidized oral rehydration solution (ORS) and zinc commodities. Where these projects were successful, the results may not be generalizable because of the degree of subsidization and/or the fact that private provider networks may be receiving additional donor support that will not be provided long term. Evidence has further demonstrated that highly subsidized or free commodities can create low-price expectations among consumers, who may not be willing to pay a full market price (Fischer et al. 2014). More information is needed about the relative benefits and challenges to sustainability created by product subsidization.

### **The links between provider knowledge, caregiver awareness, and treatment use are very complex and need further research/investigation.**

Several papers reported improvements in caregiver awareness after the implementation of provider-focused trainings and knowledge improvement activities. However, experts consulted as part of creating this brief highlight how DHS data show little correlation between caregiver awareness and actual use of ORS or zinc products. In Tanzania, knowledge about ORS progressed by 16 points between 1992 and 2015, but ORS use declined by 12 points over the same period. More information is needed regarding the complex process of translating caregiver awareness into actual product use.

**There is mixed evidence regarding the importance of mass media and interpersonal communication in creating demand, increasing awareness, and encouraging correct, consistent use of ORS and zinc products.** In Indonesia, the Point-of-Use Water Disinfection and Zinc Treatment (POUZN) project found that a sustainable marketplace for a new product can be generated quickly under the right conditions and

when matched to local context. Once producers recognize the value that a new product offers them, they will contribute their own resources, as long as appropriate public policy components are in place. In Benin, the POUZN project found that using mass media was essential to creating awareness and generating demand for previously unknown zinc products. However, there are also examples of mass media and interpersonal communication campaigns that failed to achieve their objectives. In Tanzania, the POUZN project's behavior change communication campaign, which targeted caregivers using community-level market activation activities, road shows, and radio spots between 2007 and 2010 appears to have had limited impact. In Ethiopia, improved care seeking for diarrhea between 2010 and 2016 may have been more closely linked to health infrastructure and health workforce improvements than to parallel mass media efforts (POUZN Project 2010b). Demand creation activities and mass media efforts may be an important component of a comprehensive ORS and zinc project, but more evidence is needed regarding their efficacy in reaching intended targets, triggering expected behavior change, and overcoming additional barriers such as cost to action.

### **Additional provider training and knowledge transfer activities are needed to curb the over-prescription of antibiotics and antidiarrheal agents and to increase private providers' confidence in advising on ORS and zinc use.**

Ensuring that private providers are adequately trained is essential to promoting the short- and long-term impact of childhood diarrhea interventions. Further, once providers are trained and active at their worksite, they need some form of ongoing support and continuing education. Supportive supervision from public, private, or donor entities can enhance pharmaceutical practices and reduce unnecessary use or over-prescription of antibiotics. Models borrowed from the pharmaceutical industry

and adapted to the realities of private providers have also demonstrated success (Tao et al. 2017) (CHAI 2011).

**Incorporating community-level behavior change communication to circulate messages regarding appropriate sources of diarrhea treatment can maximize the impact of those messages on care-seeking practices.** In addition to increasing awareness activities targeting caregivers, interventions should include generating demand for ORS and zinc.

**More efforts are needed to encourage the prescribing of ORS and zinc together, while also discouraging the use of zinc as a stand-alone product.** Several studies reported that provider prescribing behavior for childhood diarrhea improved with access to training and subsidized commodities. However, sustained incentives were needed and remain an important strategy to encourage the use of ORS and zinc together long-term.



*A private provider advises a mother on use of an ORS product in Ghana. Additional provider training is needed to increase private providers' confidence in advising on ORS and zinc use.*

Photo: Jessica Scranton

**Partnership is critical to success.** As demonstrated in the Scaling Up Zinc for Young Children (SUZY) project, partnerships between governments, NGOs, and the private sector are critical to ensuring the success, scale, and sustainability of private sector initiatives. Partnerships can align incentives, promote improved knowledge acquisition and exchange between actors, and help guide long-term strategic planning.

**There are challenges when informal private providers are operating illegally, requiring interventions that seek to formalize and involve them in quality assurance and quality improvement interventions.** The Diarrhea Alleviation through Zinc and ORS Therapy (DAZT) model and other implementation experiences highlight how identifying and working with informal private providers can be a challenge when those providers are operating underground and/or are reluctant to be identified to the public sector. Efforts that involve informal providers or those otherwise wary of the public sector must work to support formalization of private facilities and ensure collaborative efforts seek to pursue collaboration and avoid penalization for engagement.

**Future donor or government implemented programs should emphasize partnership structures that can make private providers aware of the dangers of incorrect or unnecessary treatments.** There is a risk that private providers who have undergone training to provide ORS and zinc will not demonstrate improved prescribing behavior. Programs should work to ensure that providers understand the dangers of mistreatment with antidiarrheals and antibiotics, including the risks of drug resistance or negative patient outcomes. Given that there is no simple assessment tool or clinical technique to differentiate between bacterial and non-bacterial causes of child diarrhea, private providers often face significant uncertainty in recommending treatment. Provider training

programs must take this into account, emphasizing the correct use of antibiotics, the risks of antimicrobial resistance, and, most importantly, the routine use of ORS and zinc.

## **Integrated child health service models**

Among the 32 papers discussing integrated disease management approaches for child health, the vast majority of integrated approaches focused on private medicine vendors or other community-based approaches to private sector service provision. The papers highlighted the importance of community-based private medicine vendors as a first-resort consult, private sector success in scaling up access to commodities and integrated services, and options for sustainably mobilizing community health workers as part of private sector approaches. Several papers also called attention to the need for additional evidence and experience to tailor integrated approaches to private sector providers. Below is a summary of key findings related to integrated child health service delivery models in the private sector.

### **Integrated approaches to child health services can improve private provider case management.**

Integrated approaches such as integrated community case management (iCCM) and IMCI can arm private providers with expanded clinical knowledge related to the presentation of diarrhea, malaria, and pneumonia in children. Expanded provider knowledge across disease areas can in turn improve symptom assessment, reduce unnecessary dispensation of antimalarials, and improve provider case management and referral. Furthermore, as malnutrition is often a concomitant health issue exacerbating the intensity and frequency of other childhood illnesses, it is critical that iCCM strategies include attention to nutritional status, particularly to undernutrition and stunting.

**Social franchising may be key to organizing multiple private providers toward integrated approaches.** As demonstrated in numerous private sector mobilization projects implemented by SHOPS Plus, leveraging social franchises, provider networks, and other umbrella organizations can be a rapid and effective way of mobilizing multiple providers around specific disease interventions. In the case of iCCM, networks or franchises can allow independent providers to access trainings, commodities, and other supports they would not otherwise receive. Franchises or network-led organizations can also serve as a coordinating and oversight agency to ensure private providers are accountable. Such approaches have demonstrated that proprietary patent medicine vendors (PPMVs) and other community-based medicine vendors can be successfully integrated into community case management strategies.

**Public-private partnerships are powerful tools in advancing integrated approaches.** As was found with the diarrhea specific case studies, several integrated studies demonstrated the power of partnerships to reduce the incidence of childhood illnesses. As in disease-specific projects, these partnerships can help integrate private providers into community case-management strategies, facilitate access to trainings and commodities, and improve private provider quality by linking them to public sector and donor-supported supervision processes. Given that integrated approaches involve various government bodies, disease management agents, and funding streams, public-private partnerships can coordinate various public and private actors around shared goals.

**Community-based, private sector delivery of child health services can be successful in insecure environments, particularly when done using a broader, health systems strengthening approach.** As demonstrated in South Sudan, where private providers are brought into iCCM strategies or other integrated child disease approaches, the

emphasis on integrated training can help ensure multiple key services continue at the community-level during times of crisis or instability. However, as further evidenced by weaknesses in the South Sudan context, perhaps more important than training are the associated health system efforts to strengthen oversight, align private programs with other national health initiatives, reduce parallel systems, integrate service delivery, simplify supervision, and help providers adapt to ever-changing contexts.

**Donors must continue to innovate new ways of assisting governments to design and implement integrated approaches utilizing community health workers that can drive sustainability.**

Several papers assessed as part of this review discussed the fact that successful iCCM and IMCI strategies that mobilize community health workers remain largely public sector and/or donor funded. There is a need to assess more sustainable models of care, in particular how the private sector can mobilize community health workers for iCCM. Although the Living Goods initiative relied on and still relies on significant donor funding, the model has demonstrated how innovative hybrid business models for last-mile distribution of essential medicines, with sufficient support from technical assistance partners, can help community health workers integrate siloed disease areas, reduce duplicative community programs, and incorporate the latest technology to advance quality of care.

**There is a need to intensively focus on quality of care when applying integrated approaches.** Again, mirroring the findings of the diarrhea specific case studies, in Uganda, although iCCM was successfully scaled up through private medicine vendors, only 10 percent of febrile children were correctly managed in the study. The authors argue that these findings demonstrate a missed opportunity for children to quickly access appropriate and timely treatment of common childhood illnesses, and that there is an urgent need to improve the standard of integrated care provided at drug shops.



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# Lessons Learned

This brief outlines key findings from diverse private sector efforts to treat childhood illnesses worldwide. The success of private sector-focused interventions surveyed varied widely depending on the clinical intervention, type of private sector outlet, and cadre of attending personnel. In the case of malaria, for example, several studies noted that a principal barrier to use of mRDTs in community-based malaria care is the lack of a sustainable purchase price or product supply. Hawkes et al. (2009) highlight how, given the relatively high cost of mRDTs compared to a single ACT treatment course, the average health service payer would need to value the cost of using an mRDT to confirm the diagnosis as worth the benefit of avoiding the cost of a potentially unnecessary ACT treatment. In Democratic Republic of the Congo, for example, the cost of an mRDT equates to \$8.79, which is eight times the cost of an ACT treatment course and 60 percent of the annual per capita public expenditure on health care (\$15 per person, per year). This raises questions about where, and in what type of prevalence settings, the use of mRDTs might be most cost-effective and practical for scaling rapid diagnosis of malaria. Reports have highlighted, for example, that the probability of mRDTs being cost-effective is less than 50 percent when malaria prevalence is greater than 80 percent; mRDTs are likewise only cost-saving below a prevalence of 52 to 55 percent (Zikusooka et al. 2008) (Rolland et al. 2006).

In Nigeria, interventions that improved private provider and community knowledge of the treatment of uncomplicated malaria (interventions that have worked in other global settings), did not lead to a significant proportion of patients being treated in accordance with malaria treatment guidelines. Less than half of all febrile patients attending private clinical facilities were tested for malaria across both facilities in the intervention arm that had received training on the treatment of uncomplicated malaria and facilities in the control arm that had received no training. Of patients who were tested, the proportion who tested positive and received or were prescribed an ACT was actually lower in the intervention arm. Despite most private providers reporting that they had charged the recommended price of 100 Naira (\$0.60), there was also considerable variation in ACT prices, with some providers and patients reporting paying up to 10 times the recommended price. Ultimately, the authors concluded that a full cost-effectiveness analysis of the program was not even necessary given the higher costs and minimal effect in the intervention arm (Onwujekwe et al. 2015).

Negative findings from private sector programs focused on diarrhea management were present as well. In the global POUZN project, success and failure varied widely by context. As reported, when the right conditions existed, scale up of private sector ORS and zinc delivery was achieved in a relatively short period of time, but there were wide differences across countries. In India, POUZN offered a stipend to the newly trained NGO

“detailers,” and the project’s pharmaceutical partners received free samples of zinc and ORS as would typically be provided to regular drug representatives. Although this approach facilitated program start-up, the project was not sustainable at scale and was streamlined to reduce the number (and costs) of detailer facility visits from four to just one over a 5-month period. POUZN India sought to create and prime a rural market for ORS and zinc that would stimulate pharmaceutical company engagement and lead to the removal of subsidies, but the model was not sustainable at scale over time. Similarly, the POUZN Tanzania project reported that although providers (in both dukkas/shops and accredited drug dispensing outlets called ADDOs) who were trained in diarrhea management and provided with a subsidized supply of ORS and zinc successfully prescribed zinc to 27 percent of clients and ORS to 16 percent of clients; nearly 57 percent of child clients with symptoms of diarrhea did not receive either ORS or zinc. In licensed pharmacies, zinc prescribing rose from zero to 34 percent, but ORS and zinc (the gold standard) only rose to 23 percent (POUZN Project 2010a). Across the POUZN countries, it was argued that until the use of ORS and zinc is streamlined into private sector health services at the community level, it is unlikely that such products will receive substantial

financial and marketing support to promote a truly sustainable private sector commercial market (Stene et al. 2010).

In Kenya, Tavrow et al. (2003) reported that whether clients accessing antimalarials were told the correct dose varied significantly by both drug (chloroquine, sulfadoxine-pyrimethamine, or amodiaquine), and private provider type (shops/kiosks, pharmacies, and private clinics of various size), and the price recommended by private outlet attendants ranged from \$0.03 to \$2.29 for the same medication. The authors concluded that, due to this variation in dosing and pricing, improving the quality of low performing private outlets at a cost low enough for the activity to be scaled up nationally would be significantly challenging. In Uganda, an inventory of private health providers reported by Tawfik et al. (2006) included a range of formal practitioners (physicians, nurses and midwives, medical officers, and pharmacists) and informal practitioners (nurse assistants, traditional birth attendants, health aides, drug sellers, and shop keepers). Although many facilities were appropriately registered, there were numerous private practices that were not registered with district health authorities, and many facilities were offering services they were not authorized to provide.



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*Some barriers to the use of mRDTs in community-based malaria care are the lack of a sustainable purchase price and mRDT supply.*

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# Recommendations

As donors and global implementing partners look to scale up successful private sector efforts, it is critical that they consider the total universe of private health facilities, providers, and practices. Several of the published studies referenced in this literature review exercise highlighted areas where more research is needed to advance understanding of child health case management through the private sector.

**Long-term evaluations are needed to understand the full impact of interventions focused on the private sector.** Several interventions presented in this literature review provided details on initial program outcomes. Few, however, looked at long-term implementation experiences (longer than two to three years) and there is a dearth of information on long-term sustainability or success of interventions after the initial implementation or donor focus. Following up on recent interventions to more fully understand long-term impact, and to design longer term evaluations as models are brought to scale would be beneficial.

**New models of private sector, community-based service delivery that are sustainable by design and not reliant on long-term donor subsidization are needed.** Several papers presented child health service models successfully scaled through community health workers and other community-based initiatives. However, as the majority of community health workers remain public sector managed and/or donor funded, there is a need for additional research on financially and logistically sustainable models to mobilize community health workers through the private sector, including supervision and oversight mechanisms.

**There is a need to more rigorously evaluate interventions that aim to improve provider knowledge and customer adherence to private sector-delivered products.** Given that text message applications had mixed effectiveness in improving provider knowledge and patient outcomes, digital health or other technological innovations that can improve private sector provider knowledge and assist patients in adhering to prescribed therapies should be explored.

**Additional evidence on effective quality assurance and improvement measures is needed.** Regardless of the child health disease area or private sector model used, quality assurance and improvement needs to be emphasized in all interventions. More information is needed regarding successful quality assurance/quality improvement interventions in the private sector generally, and, more specifically, regarding quality assurance/quality improvement models that work for child health interventions in the private health sector among both clinical and nonclinical providers.

**There is a need for research that sheds light on appropriately balancing resourcing and scale-up of interventions.** In experiences that expanded mRDTs to private sector locations, it was observed that well-resourced and broad interventions may not be scalable, while interventions that required fewer resources and were more scalable often produced poorer outcomes. More information is needed to understand the scalability of private sector mRDT options and how resource utilization and scalability can be balanced and rationalized for greatest impact.

**More research is needed on secondary or unintended effects of private sector interventions.** The introduction of mRDTs in the private sector can reduce the unnecessary use of antimalarials, but can also lead to the unnecessary use of antibiotics. More research is needed to understand this phenomenon and learn how providers can become better informed on the risks of overusing antibiotics. Further, there is a need for researchers and implementers to look for such secondary or unintended effects of private sector implementation.

**Some informal and unlicensed private health providers (such as PPMVs) require interventions to improve quality.** Almuzaini (2013) found that there is a higher prevalence of substandard and counterfeit drugs in private unlicensed outlets. As implementers approach the private health sector, it is important to focus not just on registered and formal health facilities, but also on informal private providers delivering services and products of unknown quality.

**More research is needed on how to mobilize iCCM in the private sector and how to build sustainable iCCM models.** To date, little has been done to harness the potential of the private sector to improve access to non-malaria fever treatment among children under 5. Although several papers in this review documented successful efforts to implement integrated models via the private sector, further research is needed on the success of these models over time and on novel approaches to financing and scaling private sector models that are sustainable without donor investment.



Photo: Rod Waddington

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