The moment of sale: Treating malaria in Abidjan, Côte d’Ivoire

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(Received 17 August 2009; final version received 23 September 2009)

Beyond home care without active treatment, the first step of home-based management of malaria (HMM) is the health provider–customer interactions that often lead to the purchase of drugs or herbs to treat symptoms. In Abidjan, Côte d’Ivoire, the quality and content of such interactions in pharmacies where antimalarials are sold officially, with illegal drug vendors and with herbal medicine sellers, vary considerably. Commercial encounters associated with adult illness episodes of locally identified malaria, observed in 2004–5, illustrate that customers present to sales points, on behalf of people who are ill, with a pre-established diagnosis and the intent of purchasing medication with which they have prior familiarity. Customers sought neither diagnosis nor clarification, and communication between vendor and customer was limited to minimal enquiries or suggestions. These findings have important implications related to the need for vendor training to support HMM and so ensure prompt and appropriate treatment outside clinical settings.

Keywords: malaria treatment; antimalarials; home-based management of malaria; pharmacy; Côte d’Ivoire

Approximately 3.2 billion people are at risk of infection and more than one million people die from malaria annually, the majority in sub-Saharan Africa. Timely access to, and effective, antimalarial treatment reduces the disease burden (WHO 2005), but this is undermined by the fact that some 80% of all fever cases are treated at home (McCombie 2002; Williams and Jones 2004). In 2000, 44 African states signed the Abuja Declaration, which adopted home-based management of malaria (HMM) as a strategy to improve prompt access to appropriate treatment (RBM 2005). This strategy, informed by substantial social research on the home and community management of fever and other malaria-related illness (Gyapong and Garshong 2007), was designed to ensure that at least 60% of people have access to affordable and appropriate treatment within 24 hours of the onset of symptoms of malaria (WHO 2004). Considerable research has been undertaken on improving access to appropriate treatment through education and information. This includes enhancing

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the role of community health workers in diagnosis and treatment (Bell et al. 2005; Gilroy and Winch 2006; Okanurak and Ruebush 1996; Pagnoni et al. 1997) and the role of health providers outside of formal institutions, and the feasibility of simple interventions such as the proper labelling of anti-malarials and the distribution of pre-packaged courses of tablets for self-medication (Afolabi et al. 2004; Agyepong et al. 2002; Ansah et al. 2001; Kaona and Tuba 2003; Kilian et al. 2003; McCombie 2002; Nsungwa-Sabiiti et al. 2004; Sirima et al. 2003; Williams and Jones 2004). Recommendations that flow from this work include training vendors about the use of anti-malarials to improve the quality of treatment in drug shops (Ajayi 2002–2003; Marsh et al. 2004; Tavrow et al. 2003; Van der Geest 1999). Communication between vendors and customers is critical if such interventions are to work. Yet, other than studies of doctor-patient interaction (Conteh et al. 2007; Kamat 2001; Montgomery et al. 2006), research has focused either on patients’ or health providers’ perspectives, but not on their interactions. Whyte, van der Geest and Hardon (2002), for example, illustrate how commodity items are perceived, and the political economics of their introduction, but in their work vendors and consumers are treated independently. Craig’s (2002) work in Vietnam, drawing attention to the incorporation of biomedicine into the household management of various ailments, is the exception.

With increasing drug resistance, conventional anti-malarial drugs have to be replaced with artemisinin-based combination therapies (ACTs), and ACTs are the current WHO recommendation for first-line malaria treatment in sub-Saharan Africa. Most national programmes have adapted these guidelines and obtain these drugs through the Global Fund to fight against HIV/AIDS, TB and malaria. At the time of the present study, ACTs had limited availability in Abidjan and were relatively expensive, and adherence with the regimen (up to six doses) has been problematic (Blooland 2003). Consequently, accurate diagnosis of malaria is critical for accurate treatment and to prevent drug resistance (Bell et al. 2006; Reyburn et al. 2004). First diagnosis typically occurs outside the clinical setting.

Meanings of illness, the construction of disease, and the determination of treatment are established in interaction, that is, as ‘an interpersonal or intersubjective experience’ (Kleinman 1995, 15). Clinical signs and results from tests, a family’s experiential knowledge, and knowledge of other modalities, are negotiated and linked to explanatory models, i.e. to ‘explanations of sickness and treatment [that] guide choices among available therapies and therapists’ (Kleinman 1980, 105). Although Kleinman acknowledges considerable fluidity in everyday practice, the idea that people build up explanations and meanings for sickness on the basis of interaction remains valid. Neither verbal nor non-verbal interactions proceed randomly; rather, they are informed and sedimented, with prior experiences and the routine familiarity of the situation combining to produce meaning (Schütz and Luckmann 1979). In this article, drawing on field research conducted in Abidjan, Côte d’Ivoire, interactions between customers and people who sell drugs, including anti-malarials, are described (Schütz and Luckmann 1979). Close analysis of the moment of purchase elucidates how local residents diagnose, treat and manage palu (from the French word for malaria, paludisme), a term used in Abidjan for various malaria-related illnesses and other conditions with similar presenting symptoms. Vendor–customer interactions influence the constitution of palu, and on this basis people may purchase and use anti-malarials and other drugs for symptomatic relief. These factors are important in the delivery of urban HMM strategies.
Methods

The data derive from observations of medical retail encounters, undertaken as a component of a larger ethnographic study and household survey conducted in urban Abidjan, the economic capital of Côte d’Ivoire (Granado 2006). The research was conducted in Yopougon, a municipality established only 35 years but now the largest in Abidjan. Today it has over a million residents from across Côte d’Ivoire and neighbouring countries, living in settings that range from upper middle-class housing estates to squatter settlements providing rudimentary shelter.

According to the household study (Granado 2006), the most common sources for self-treatment of palu by adults were government-registered private pharmacies selling pharmaceuticals imported from France, illegal drug vendors offering various pills, and herbalist vendors selling herbs in small amounts in local markets. Only the pharmacies would be considered for HMM strategies by the government, since the other two points of sale either offer no pharmaceuticals or cannot sell pharmaceuticals legally (although they do so, see below). Examples of all three sources for advice and treatment were included in this study however, since all three are points of reference for people seeking treatment for palu. One pharmacy, one drug vendor and one market stand, all located in the study area, were selected purposively because they were identified as common health seeking points by household study participants. Less systematic observations of other outlets of these three types suggest that they were typical.

Observations took place over six months between April and May 2004 and July to October 2005, when the first author was regularly present at one of each of the three chosen places to observe customer behaviour, including their face-to-face interactions with vendors. The observations were direct (Goffman 1971), as might occur in everyday life, and were not subject to quantification (e.g. by time of day or duration of interaction). The vendors were informed that the aim of the study was to understand better peoples’ health seeking practices. The importance of the moment of interaction was not emphasised; nor was this anticipated to be significant. Further, while the observer was visible to all people present, other people in addition to the vendor and customer are not unusual as a result of limits in space, the social nature of shopping and the presence, in pharmacies especially, of several assistants; thus, despite clear dissimilarities, the anthropologist was usually ignored. Observation times varied from one to four hours, at different times of day and on different days of the week. The herbal medicine seller and the illegal pharmacy were open seven days a week, the official pharmacy six days but with a 24-hour service once a week every two months. Whenever possible, immediately after the encounters, notes were taken about the interactions. Following a session of several interactions, field notes were expanded, and data were then coded and analyzed to elicit key themes in interactions. Clients were not interviewed about decisions prior to the observed interaction, nor in relation to their motivation to frequent one of the three locations (but see Granado 2006).

In this article, select interactions are presented as exemplary. These exclude interactions not based on self-diagnosis and self-treatment, such as prescription-based interactions, since it was not feasible in this context to identify the influence of professional diagnosis on treatment choice. However, prescriptions can influence self-treatment – people reinterpret them in ways consistent with their own understandings, save prescribed medicine, and use information provided at the time of prescription for later self-management. Data were triangulated by interviewing...
government officers from the Ministry of Health, particularly from the divisions concerned with malaria and drug import and registration, salesmen working for the three existing wholesale companies that provide drugs, and three representatives engaged in illegal drug-trade identified through personal contacts.

Results

Malaria drug treatment policy in Côte d’Ivoire

Côte d’Ivoire struggled to maintain health and other programmes following economic crisis from the 1980s and the negative effects of structural adjustment programmes (Mundt 1995). The outbreak of social and political conflicts in September 2002 (Akinde´s 2004) further undermined the effectiveness of the health system, paralysing most public and private malaria control activities and other disease programmes. Chloroquine treatment was officially withdrawn in 2003 because of high resistance, and in April 2005, a new ACT-based first-line treatment (artesunate plus amodiaquine) was adopted. Although the existing first-line schema, based on amodiaquine, remains in place, by mid-2006, 950 doctors and 800 government-employed healthcare providers had received documentation describing the new treatment protocol (CCM 2006; PNLP 2005). A proposal submitted to the Global Fund to fight AIDS, tuberculosis and malaria foresees the possibility of resuming and strengthening the fight against malaria in post-crisis situation, while relying on community-based organisations to deliver information to adhere to appropriate treatment (CCM 2006). The home management of malaria remains a future strategy of the national malaria control programme.

Antimalarials are approved for sale and distribution in both public and private sectors of the national health system. Public facilities in Yopougon comprise a university hospital and a number of urban health centres (Formations Sanitaires Urbaines), including a specialized mother-child clinic with both doctors and nurses. Antimalarials are sold at a reduced price at pharmacies attached to public health centres and hospitals, upon presentation of a prescription from the institution. A medical consultation is therefore necessary. The government’s public health pharmacy (Pharmacie de Santé Publique, PSP) imports mostly generic pharmaceuticals from countries such as India and Bangladesh, and certain European manufacturers willing to sell at reduced cost. Registered private pharmacies, run by university-qualified pharmacists, also officially sell antimalarials, either produced locally or imported from France. These two channels are the only legal avenues for antimalarials. The Directorate of Pharmacies and Drugs of the Ministry of Health (Direction de la Pharmacie et du Médicament, DPM) controls and monitors all legal aspects of the official drug market, registers drugs, controls prices, and controls pharmacies and the small local pharmaceutical industry. However, drugs penetrate the country through clandestine routes and are diverted from official channels. Single pills – both registered and unregistered pharmaceuticals – are sold along the roadside at ‘ground floor pharmacies’ (pharmacies par terre) on virtually every street corner, and by ambulant drug peddlars. Although these sales are illegal and subject to sporadic police checks, the volume of ‘ground floor’ sales must be considerable. However, no study has been undertaken on them and no hence data are available.
Interactions at official pharmacies

Commercial pharmacies, with their blinking green crosses, are particularly prominent in Yopougon. In the air-conditioned pharmacy in which observations were conducted, notwithstanding background radio music and the jingle of an electric cash register, the ambience was quiet. Posters from pharmaceutical companies decorated the walls and, behind a counter, boxes of medication and other products were piled high in storage racks. One compartment was labelled *paludisme* (malaria), and included antimalarials from 26 different drug companies from Europe and South Asia, with the latest ACT products available alongside the previously recommended, but now in theory withdrawn, chloroquine. Beside the cash register was a large transparent plastic bowl, with packets of generic drugs, commonly bought by single blister packs. Three pills of amodiaquine, available as a blister pack, cost 525 francs CFA. A blister pack of ten chloroquine pills was 200 francs CFA (in 2005, 1 euro = 525 francs CFA).

Seven people usually work in the pharmacy: a pharmacist with university training (male) and six assistants (*auxiliaires de pharmacie*) (five females, one male), all trained on the job for about one year, either in this pharmacy or in another similar practice. The assistants, responsible for most interactions with customers, work 10–11 hours a day. Because they work in a pharmacy, they have some implicit authority; they are often addressed by customers as *docteur*, and they wear white coats like doctors. Marie, who has worked in this pharmacy for 16 years and so is the oldest employee, sits at the cash register all day. The other assistants joined 5–7 years ago. One stands up from a bar stool whenever a customer enters through the pharmacy’s swinging glass door.

A boy about 12 years old, with a younger child, enters. He has an empty packet in his hands. The male assistant Yao stretches out to take the box, glances and recognizes it as a quinine-based product, turns to the storage racks, and takes out a full box. He places it next to the cash register and nods. The boy understands that he is being asked to move to the cash register. When it is his turn, the cashier asks, ‘This it?’ (*ce lülü?*), gesturing to the box Yao had placed there. The boy nods. The cashier moves the bar code reader over the price tag, takes the money from the boy, and puts the packet into a plastic bag. The boy and his younger companion leave. The entire interaction lasts for about two minutes.

The second and third examples take no longer. A middle-aged man enters and walks up to the assistant Bernadette, pushes a scrap of paper over the counter and asks her, ‘How much?’ (*C’est combien?*) She knows the price by heart, for she is asked frequently about prices. She writes the price down on the paper. The man takes the paper, grumbles, and leaves the pharmacy. An hour later, he is back, and asks for the product. Bernadette takes it off the shelf and puts it by the cash register. The man is served immediately. As he leaves the building, he turns to thank Bernadette. She nods in response.

A well-dressed young woman enters and asks Bernadette for a blister pack of chloroquine and one of aspirin. Bernadette directs her to the cash register. She repeats her order to Marie, who takes one of each from the transparent bowl. The products in the bowl are difficult to differentiate, and Marie identifies them by reading the products’ names on the backing foil. The girl pays and walks out of the door.
The fourth interaction is different, as the customer does not know what he wants. A young man comes in, walks towards Yao, greets him, and explains that his older sister is suffering from \textit{palu} but is pregnant. He wants a recommendation for treatment. Yao asks the month of pregnancy. Her brother does not know, so Yao asks him to bring his sister to the pharmacy. The man objects: his sister is in bed. Yao insists that he can only recommend something if he knows the month of pregnancy, and cannot give the brother medication without this. The man leaves discontented and does not return that evening.

These four interactions illustrate the four types of encounters leading to self-treatment. The customers are rarely the patients, but are on errand for the person who is ill. About half of the enquiries and purchases are carried out by children, but there appeared no difference by gender. Usually, customers nominate and choose from a limited number of drugs to self-treat; the most common are kept in the bowl by the cash register. In the first three interactions above, the customers, like most who come to the pharmacy, already know what they want. They present an old packet of the product, have written down the name of the drug, or can give the name to an assistant. Verbal communication is limited, no names of diseases are used, no diagnosis is given. The customer neither asks about drug use nor asks (or is told) about possible side effects. Neither the pharmacist nor pharmacy assistant asks the purpose of the drugs and does not challenge the customer’s knowledge and implicit authority; they refer to the keen competition among different providers as their motivation for satisfying their customers’ needs. The fourth example is less common and illustrates the interactions that occur when a recommendation is requested. The assistants or the pharmacist are willing to give professional advice and often do so, although not if the information provided is incomplete, as above, and there is a risk of an adverse effect. What is important to note, however, is that the diagnosis was neither contested nor reworked. Diagnosis never developed through interactions at the pharmacy.

\textbf{Interactions with drug pedlars}

Ground floor pharmacies (\textit{pharmacie par terre}) are pharmacies in name only. They are locations for drug pedlars, usually women, to sell drugs, including single pills, illegally. The vendors are either ambulant and advertise their commodities by wearing an installation of empty drug packages on their heads, or they stay at a specific place to sell pharmaceuticals alone or also to sell other products.

Fatou, who has three daughters, belongs to a third group. She sells seasonal fruit and vegetables such as tomatoes, bananas, mangoes and onions, ice-cold water bottled in small transparent plastic bags, eggs, and other products. Her table is located under a tree at a major crossroad in the heart of Yopougon. Under the table but visible from the roadside, she keeps pharmaceuticals; although they are in a small plastic container, they are covered with dust and grime from the traffic. Fatou started selling pharmaceuticals nine years ago; she added the other products later. Each day, she stocks up with supplies bought from a larger market. She starts selling at around noon and stays by her stall until around 11 o’clock in the evening, selling most drugs, including pills and effervescent tablets bought individually from 25 francs CFA (0.04 euro), after night-fall. As Fatou cannot read or write, she distinguishes them by colour and form.
A young woman approaches and greets Fatou, and asks for two pills of Nivaquine. Apart from the drug name, she uses the lingua franca of the markets, Djoula. Fatou brings the plastic box out from under the table and starts digging. She soon pulls out a blister pack, and with scissors, cuts off two chloroquine pills and wraps them in a piece of newspaper. The woman and Fatou exchange money for the pills. The woman walks back along the street in the direction from which she came, while Fatou serves the next customer.

Another woman, in her 50s, stops, holding her head in her hands. She complains, ‘C’est le palu’ (‘It’s palu’ i.e. malaria). Fatou murmurs. The customer asks for two pills of each of fatôché (‘crazy boy’) and wouroufatô (‘crazy dog’), both paracetamol-based medications produced in India; their Djoula names derive from the images on the boxes. Fatou has run out of wouroufatô. Hence, she offers the woman a whole blister pack of fatôché for 125 francs CFA (0.2 euro) instead of 150 francs. The woman does not seem interested. Fatou lowers the price again and offers the pills for 100 francs. The woman accepts this offer, and unwraps a coin she is carrying in her pagne skirt. After paying, she walks away slowly.

The third example is a boy. He politely greets Fatou and various people sitting around visiting Fatou, before asking for palu fla (fla: drug in Djoula). Fatou wants to know how much palu fla he needs. He specifies that he has 50 francs. Fatou proceeds as before, and gives the young man two chloroquine tablets. He puts them in his trouser pocket, pays and leaves.

The interactions at the roadside to get single pills are short interactions between the store holder and customers who come specifically to buy the drugs. The customers are well aware of what they want; they know the products and their names, and do not buy other goods for sale. Communication, in either Djoula or French, is limited. The interactions are similar to those that occur when Fatou sells a banana or onions. Customers do not ask how to prepare an onion; nor do they ask about the medication they purchase. Neither is the diagnosis discussed. Fatou responds to the woman who states her diagnosis only by murmuring. Customers are not asked about symptoms, and no discussion takes place about the illness episode. Moreover, Fatou does not explain anything. The interactions are very similar to the first three in the pharmacy. Unlike the pharmacy, however, drug prices may be negotiated, and also unlike the pharmacy, customers do not ask Fatou for recommendations for treatment.

**Interactions with the herbal medicine seller**

Fresh, dried and powdered leaves, roots and bark are sold predominantly in markets; their use for treatment is referred to as à l’indigénat (‘according to the indigenous way’). Aya is a vendor at a medium-sized and crowded market in Yopougon. She insists that she is a saleswoman and not a healer. She learned her profession from a friend, first by observation and then, slowly, by attending to customers. Today, she has her own business and proudly supports her six children. Early in the morning, she buys herbs from another municipality of Abidjan, and from around nine until six in the afternoon, year round, she works at the market. On one side, she is flanked by women selling dried fish; on the other, by women selling plantain and tomatoes. The herbal specialists themselves do not sell food products but only herbal products, referred to as médicament, drugs. The big pile of herbs before Aya appear chaotic.
to an outsider, but Aya is well-organised. She rearranges the herbs every few hours to keep order. The herbs have different names in different local languages, and are used for different purposes. Aya knows many of these applications, but she is always interested to learn more.

The first customer, an old lady, stops by while doing her daily market shopping. She explains: ‘I want the yellow bark against palu. That’s what I usually buy. It’s bitter’ (Je veux l’écorce jaune pour palu. C’est ça je paye d’habitude. C’est amer). Aya knows what the woman is referring to and pulls it out. The customer opens her shopping basket and Aya puts the bark on top of some tomatoes and groundnut paste. The woman pays 100 CFA and is about to leave when Aya reminds her to let the bark soak in water for at least a day, before using the water to bathe. The woman nods and slowly walks away. She had established her diagnosis before coming to the market and knew exactly what herb she wanted.

In the second interaction, Aya’s expertise is required. A middle-aged woman complains that her whole body aches; it is as if her body is burning. She explains that her urine has the colour of Coca-Cola, ‘It’s palu that caught me!’ (C’est le palu qui m’attrape!). Aya starts to collect different leaves and roots, leaning forward to the farthest end of her table. In no time, she places about seven different herbs in front of the woman, explaining their preparation, imitating their application with her whole body. ‘If you want this pain to really end, you have to take the leaves and roots and put them in a clay pot. Boil them and wash yourself with the liquid. Then you drink it and use the juice as an enema’ (Si tu veux que ça fini vraiment, il faut prendre ces feuilles et racines, les mettre dans un canari, faire bouillir et te laver avec. Puis, en boire et te purger avec le jus). The woman wants to know how long the treatment should last. Aya specifies until all the juice is used up. The woman seems to have no other questions, and she takes out the money to pay. Aya tells her the price, the woman pays, and before she can leave, Aya repeats how to prepare the treatment.

The third interaction depends on Aya’s knowledge and a physical examination. A young woman walks up and explains that she does not know what is wrong with her. Aya looks at her from each side, and puts her hand on the women’s forehead. After examining her, Aya starts to collect herbs and explains to the young woman what to do with them. Aya reassures the woman that with this treatment, she will soon be cured. Based on the symptoms, Aya chooses a treatment.

Most customers presenting to Aya were women, who purchase herbs while doing their daily shopping. The languages of consultation and purchase were not only French or Djoula, as in the official pharmacy or the pharmacie par terre, but in all of the languages of which Aya had some knowledge. Interactions about local herbal treatments can be divided into two groups. The first and larger group involved customers who knew by name or appearance the herbs they wanted. The second group of interactions included people who reported symptoms or a previously established diagnosis, and requested recommendations for treatment. The division between the two groups was similar to that in the official pharmacy. Nevertheless, there was a marked difference. The second type of interaction happened more frequently at the market place than the pharmacy. On several occasions, the vendor was asked for advice regarding the choice of drugs and their application. Aya was asked to choose a treatment appropriate to the symptoms. She took time to respond carefully to questions and to explain in detail the required procedure. The herbs have a much more complicated mode of preparation and application than the pills, as they are
not ready-made. Aya explains how to prepare and apply them if the customers seek this information, or if she wants to make sure they receive the best results. These interactions last longer and more words are spoken.

Discussion and conclusion

In general, interactions are a central moment in establishing a diagnosis and the appropriate treatment (Kleinman 1995). As summarized in Table 1, in this field setting, all three settings where vendor–customer interactions resulted in presumptive malaria self-treatment – at an official pharmacy, from an illegal drug vendor, and from a market stand providing herbal treatment – most interactions led to the purchase of drugs or herbs with which the customers were already familiar, and consultation was neither requested nor provided. Established through sedimented prior experiences (Schütz and Luckmann 1979), the interactions flow smoothly and routinely. Minimal verbal communication occurred, and the customers appeared to be uninterested in being recommended drugs or in information on their use. Vendors did not ask about the proposed use of the drugs, nor did they advise their appropriate use or a more appropriate treatment. Rather, vendors respected the customer’s requests and tried to provide their best service.

Against expectations, diagnosis was not established in interactions between private-sector vendors and their self-treating customers. The meanings customers attached to a single illness episode, and their explanatory models (Kleinman 1980), were not shaped or reworked in interactions with providers; customers had already established an explanatory model that was sufficiently solid to guide their choices among available therapies. In many cases, too, the customer represented the person

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seeking treatment, and the diagnosis and decision-making about medication had already taken place well before the point of sale. ‘Everyone’ knows that paracetamol is good for *palu* and how to apply it, even if this mode of application is not consistent with the manufacturer’s instructions (Granado et al. 2008). The request for a specific medication, its purpose and the diagnosis or set of symptoms to be treated, were rarely challenged.

The results are very different from the findings, and subsequent implementation projects, from Kenya (Mwenesi 1994), Mexico (Logan 1988) and South Asia (Nichter 1989), where drug vendors and pharmacists have been described as taking on the role of health educators or doctors. Such interactions in Abidjan occurred only in a minority of malaria-related illnesses in pharmacies and almost never for street vendors. The herbal seller was the only provider who took on the role of an adviser, reflecting the more complicated treatment applications of her products. One could argue that customers were too shy to approach the pharmacy assistants because of their authoritative appearance – wearing uniforms – and the respect that accompanied this; or the customers may have assumed that because the assistants weren’t trained pharmacists, their knowledge basis may be no better than that of the customers. In the case of malaria treatment seeking, however, customers simply did not look for assistance.

This pioneer study examining face-to-face interactions offers a new perspective on the development of HMM strategies. The findings are important, given that the national policy emphasises ACTs, and the Global Fund programme in Côte d’Ivoire aims to ensure access to prompt first line treatment with ACTs in public, private and NGO sectors. The research data suggest the need for Information, Education and Communication messages developed for the community to empower customers to discuss illness symptoms and treatment with assistants and to ask for the appropriate treatment. In addition, appropriate treatments according to national treatment guidelines should be made easily identifiable by customers. In this context, drugs should be controlled more strictly, allowing customers to access high quality products. This represents a substantial task legislatively and administratively, but also in training and community education.

Private-sector providers are central to malaria home management (WHO 2004). Given this, focusing on the patient side is not enough. Previous studies in Côte d’Ivoire (Kiki-Barro et al. 2004; Ndoye and Adjagbe 2005) on quality of care at pharmacies have illustrated the need to improve the ability of pharmacy assistants to recommend appropriate treatment for any disease. Self-diagnosed and home managed cases are likely to contribute to the over- or misdiagnosis of malaria (Wang et al. 2006). The results of this study of the moment of sale support previous studies calling for vendor education to improve HMM (Ajayi 2002–2003; Marsh et al. 2004; Tavrow et al. 2003), not because vendors recommend inappropriate treatment, but because they recommend nothing at all. This represents the main obstacle for interactions leading to appropriate timely treatment. Vendors – here, pharmacy assistants – could intervene by recommending appropriate treatment within the framework of HMM; they are vested with the authority to do so through their workplace, dress-style and classification. The management of malaria requires proper training for health staff including pharmacy workers. This should include communication training for interactions with customers.
Acknowledgements

We thank all the study participants for their commitment in the present study. We are especially grateful to the staff of Centre Suisse de Recherches Scientifiques en Côte d’Ivoire (CSRS) and its director Professor G. Cissé for their dedicated collaboration and support. This paper was prepared with the support of the Swiss National Centre of Competence in Research (NCCR) North–South: Research Partnerships for Mitigating Syndromes of Global Change. Research clearance and ethics approval for the study was obtained from the Ivorian Ministry of Research and the Board of Directors of the Swiss National Centre of Competence in Research North-South. Informed consent was obtained from health providers and vendors who volunteered to participate. Pseudonyms are used for participants to maintain confidentiality.

Conflict of Interest: none

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