



Investigating unlicensed retail drug vendors' preparedness and knowledge about malaria: An exploratory study in rural Uganda



Eric Liow^a, Rosemin Kassam^{a,*}, Richard Sekiwunga^b

^a School of Population and Public Health, Faculty of Medicine, University of British Columbia, 2206 East Mall, Vancouver, BC, V6T 1Z3, Canada

^b Child Health and Development Centre, School of Medicine, Makerere University, Kampala, P.O. Box 6717, Uganda

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ABSTRACT

Background: Despite major efforts to increase the uptake of preventive measures and timely use of the first line antimalarial treatment artemisinin-based combination therapies (ACT), Uganda continues to fall short of meeting its national malaria control targets. One of the challenges has been scaling up effective measures in rural and remote areas where the unlicensed private retail sector remains the first point of contact and a common source of treatment. The current paper discusses unlicensed vendors' (1) training related to malaria case management for children aged five and under, and (2) knowledge related to the cause of malaria, preventive measures, common signs, and symptoms, diagnostic procedures, and best treatment options.

Methods: A qualitative study using semi-structured interviews was conducted in the rural district of Butaleja, Uganda in 2011. All 88 unlicensed drug outlets enumerated in the study area were visited by six locally recruited research assistants, with one vendor from each outlet invited to participate. The transcripts were analyzed using acceptable qualitative research protocols.

Results: About half of the 75 vendors interviewed had received some sort of formal training on malaria at a post-secondary institution, although only 6.7% had qualifications which met licensure requirements. The study found widespread misconceptions relating to the cause, as well as prevention and treatment of malaria. A large majority of the vendors relied primarily on non-specific symptoms and limited physical exams for diagnoses, with less than one-tenth of the vendors recognizing that rapid or microscopic blood testing was necessary to confirm a clinical diagnosis of malaria. While most recognized mosquitoes as the primary vector for malaria, over two-fifths of the vendors held misconceptions about the factors that could increase the risk of malaria, and nearly a third believed that malaria could not be prevented. With respect to acute case management, three-quarters viewed as the best option a medicine other than the government's first-line antimalarial, artemisinin-based combination therapies (ACT). Almost three-fifths specified quinine as their preferred option, with about one-fifth recommending quinine injection.

Conclusion: Findings from this study confirm significant gaps in unlicensed vendors' knowledge related to malaria. With increased utilization of unlicensed drug outlets in rural and remote settings such as Butaleja, findings from this study strongly supports the need to implement strategies to improve the quality of care delivered at these outlet.

1. Introduction

Malaria is one of the leading causes of morbidity and mortality in the world, posing a major public health challenge in several countries across Sub-Saharan Africa (World Health Organization (WHO), 2015c). In 2015 there were 214 million cases of malaria and 438,000 deaths reported, with 90% of the deaths occurring in Sub-Saharan Africa

(World Health Organization (WHO), 2015c). Malaria constitutes the greatest threat to children five years of age and under, contributing to the deaths of approximately 306,000 children in that age group globally in 2015 (World Health Organization (WHO), 2015c). Uganda is among the top four countries for cases of malaria, contributing to 19% of Uganda's under-five mortality, second only to pneumonia (World Health Organization (WHO), 2015b; World Health Organization

Abbreviations: ITN, insecticide-treated nets; IRS, indoor residual spraying; WHO, World Health Organization; ACT, artemisinin-based combination therapy; iCCM, integrated management of childhood illness; CHW, community health workers; RA, research assistant; NSAID, non-steroidal anti-inflammatory drugs; DV, drug vendor; AMFm, affordable medicines facility-malaria; RDT, rapid diagnostic testing

* Corresponding author.

E-mail addresses: ericliow@alumni.ubc.ca (E. Liow), rosemin.kassam@ubc.ca (R. Kassam), sekiwunga@yahoo.com (R. Sekiwunga).

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(WHO, 2015c).

The strategy for malaria control in endemic countries, such as Uganda, involves prevention and prompt case management (Ministry of Health, 2005; United States Agency for International Development (USAID), 2016). For prevention, the strategy typically includes: vector control using insecticide-treated nets (ITN) alongside indoor residual spraying (IRS); the removal of breeding sites by draining pools of water, larviciding, and clearing unnecessary vegetation around houses; and reducing the entry of mosquitoes into houses by installing mosquito-proof windows, ventilators, and open eaves and closing windows and doors during the evening (Fullman et al., 2013; Musoke et al., 2013, 2015). With respect to uncomplicated malaria management, appropriate action is defined as parasitological confirmation followed by treatment with an artemisinin-based combination therapy (ACT) started within 24-h of the appearance of initial symptoms (Ministry of Health Uganda, 2010, 2012; United States Agency for International Development (USAID), 2017). While oral quinine has been the long-standing second-line treatment option in Uganda, in keeping with the WHO treatment guidelines, more recent malaria strategic reports discourage its use except in circumstances where ACTs are not available (Ministry of Health Uganda, 2010, 2012; United States Agency for International Development (USAID), 2016, 2017). Similarly, for severe malaria, recent strategic reports support the use of parenteral artemisinin derivatives (artesunate or artemether) over parenteral quinine where available (Ministry of Health Uganda, 2010, 2012; United States Agency for International Development (USAID), 2016, 2017). Rectal artesunate remains the pre-referral treatment option for severe malaria at the community level (Ministry of Health Uganda, 2010, 2012).

Though major efforts have resulted in a gradual uptake of preventive measures and impressive gains in the use of ACTs, Uganda continues to fall short of meeting its national targets. For example, while 81%–97% of households in 2014/2015 were reported to own at least one ITN, only 78% (65.0%–87.1%) of children under five were reported to have slept under an ITN the night before the survey (Uganda Bureau of Statistics (UBOS) and ICF International, 2015). Additionally, a negligible proportion of households (4.9%) had applied IRS within the previous six months (Uganda Bureau of Statistics (UBOS) and ICF International, 2015). Similarly, Ugandan studies conducted between 2011 and 2014 estimate the use of ACTs within the same or next day of experiencing fever in children aged five and under ranged from 20.8%–49%, and the number who had blood taken for testing ranged from 21%–36% (Kassam et al., 2015, 2016b; Uganda Bureau of Statistics (UBOS) and ICF International, 2015).

If Uganda is to successfully meet its national targets, adequate knowledge about preventive and treatment measures and the uptake of this knowledge into practice by all health providers is needed. In many rural and remote regions of Uganda where formal health facilities are either difficult to reach or viewed as providing sub-optimal care, the private-for-profit drug sector is often the first point of contact and a common source of treatment (Awor et al., 2012; Kassam et al., 2016b, 2016c; Konde-Lule et al., 2010; Rutebemberwa et al., 2009). While much is now being reported about the formal (licensed) private sector in Uganda, little is known about the training, knowledge, and preferences of vendors affiliated with the unlicensed private drug sector that often dominate many remote Ugandan communities (Awor et al., 2015; Buchner and Awor, 2015; Mbonye et al., 2015; Talisuna et al., 2012). What is acknowledged, however, is that few vendors affiliated with unlicensed private drug outlets adhere to national treatment protocols (Goodman et al., 2007; Sudhinaraset et al., 2013; Wafula et al., 2012).

At the request of community leaders in the rural district of Butaleja, Uganda, a large exploratory research was undertaken to identify sustainable interventions to improve malaria care for children five years

and under (Kassam et al., 2016a, 2016b, 2016c). Household survey data from across the district revealed that only a third of the children with presumed malaria received what could be considered an appropriate antimalarial treatment, about a third were treated with something other than an antimalarial, and less than a quarter were offered a confirmatory diagnostic test (Kassam et al., 2016b). Equally important, among those who received an antimalarial, almost a third of children were treated with an antimalarial obtained from the private drug sector. With unlicensed private retail drug outlets outnumbering their licensed counterparts and the formal health facilities in Butaleja, the aim of this research was to understand the role, practices, and preparedness of unlicensed outlets as it relates to malaria. The objective of this paper is to discuss unlicensed vendors' training and knowledge as it relates to the cause of malaria, preventive measures, common signs, and symptoms, diagnostic procedures, and best treatment options. A previous paper discussed vendors' perceptions of their role, practice, and social environment as it relates to malaria management (Liow et al., 2016).

2. Material and methods

2.1. Study design

An exploratory qualitative design using semi-structured interviews was undertaken to examine unlicensed retail drug vendors' training and knowledge related to malaria in Butaleja District, Uganda. The interviews were conducted during the months of August and September 2011.

2.2. Setting

The study was set in the rural district of Butaleja, one of the most disadvantaged districts of Uganda. The district has been described elsewhere in more detail (Kassam et al., 2016b, 2016c). Briefly, the district is composed of 10 sub-counties and two town councils, with a projected population of about 207,300 (Uganda Bureau of Statistics (UBOS), 2009). The main source of income for most households includes subsistence farming. At the time of the study, the formal health system consisted of one hospital, 11 Health Centre IIIs (which provide a range of inpatient, outpatient, and outreach services), 11 Health Centre IIs (which provide a limited range of outpatient services, including dispensing of antimalarial medicines); and a cadre of volunteers known as community health workers (CHWs) who provided basic care but no treatment (K Mweru, District Health Officer, personal communication, April 2011). Unlike some regions of Uganda, Integrated Community Case Management (iCCM) strategy had yet to be introduced in Butaleja. While the District is also serviced by private-for-profit drug outlets, a large majority constitute unregulated drug outlets. For the purpose of this study, unlicensed retail drug outlets are defined as mobile or stationary commercial settings, such as markets and shops, which sell antimalarials but are not registered with any government regulatory body and operate outside the purview of regulation, registration, or oversight by the government or other health or professional institutions (Liow et al., 2016). The district has no pharmacies, and the few licensed private drug outlets that are present are primarily located in peri-urban and market areas.

2.3. Sampling process and participants

Mirroring the larger research, this study was conducted in 27 of Butaleja's 66 parishes, located across the 10 sub-counties (Kassam et al., 2016b). The whole cohort (n = 88) of unlicensed retail drug outlets located within the study parishes served as the sampling frame. All 88

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