Treating febrile children in sub-Saharan Africa: evidence on recourse to multiple sources and polypharmacy from national household surveys in Madagascar, Nigeria and Uganda.

Stephen Poyer[1], Megan Littrell[2], Kathryn O'Connell[3], Tanya Shewchuk[1], Vamsi Vasidreddy[1],
[1]Population Services International (PSI), Nairobi, Kenya; [2]PATH, Washington DC, [3]Independent Consultant, Yangon, Myanmar.

BACKGROUND AND METHODS

Appropriate case management is a key control target for all childhood illnesses. Common indicators presented from population-based surveys rarely examine the use by caregivers of multiple treatment sources or the practice of polypharmacy. Understanding how a child's fever is managed in its entirety is required in order to ensure effective case management and to target appropriate interventions.

Nationally representative household surveys focused on treatment-seeking behaviour for fever among children under five were conducted in 2012 in Madagascar, Nigeria and Uganda as part of the ACTwatch research program.

Detailed information on fever case management was collected, including where advice and treatment was sought, and the medicines received at each source. Brand names and active ingredients were recorded from medicine packages when available; photo guides of common childhood medicines were also used to reduce the likelihood of recall bias.

Sources of treatment were classified as *Home*, *Public* (public health facilities and community health workers) or *Private* (all other sources) and the treatment source mix for each country mapped using proportional area Euler diagrams. The extent of polypharmacy with antimalarials and antibiotics was estimated among children who received any antimalarial and were treated exclusively by public or private sources.

SAMPLE AND RESULTS

Children under five with fever included in analyses of treatment source mix & polypharmacy

Country	Total child fever cases recorded	Weighted proportion of cases reporting no treatment	Number of cases included in analysis of source mix	Number of cases included in analysis of polypharmacy	
				Public-only	Private-only
Madagascar	2,388	10.4%	2,185	126	178
Nigeria	1,551	1.7%	1,491	96	350
Uganda	2,273	4.3%	2,113	247	517

Caregivers in Madagascar were least likely to resort to multiple types of treatment source in the case of childhood fever (**Figure 1**). 19% of caregivers used more than one type of treatment source during their child's illness, compared to 30% in Nigeria and 44% in Uganda. Where multiple sources were used the most common combination was *Home-Private* in all countries (9%, 21% and 26% of cases respectively). Only 6%, 5% and 10% of caregivers followed the combination *Home-Public* in Madagascar, Nigeria and Uganda respectively. The public sector was the least visited of the three sources in each country.

39% of children in Nigeria who were treated in the public-sector and who received an antimalarial also took an antibiotic during their fever episode, compared to 28% of children in the private-sector (**Figure 2**). Levels were similar in Madagascar (30% private, 22% public) and Uganda (32% public, 28% private).

RESULTS

Figure 1. Distribution of treatment source mix among caregivers who sought any advice or treatment for their child's recent fever episode, by country

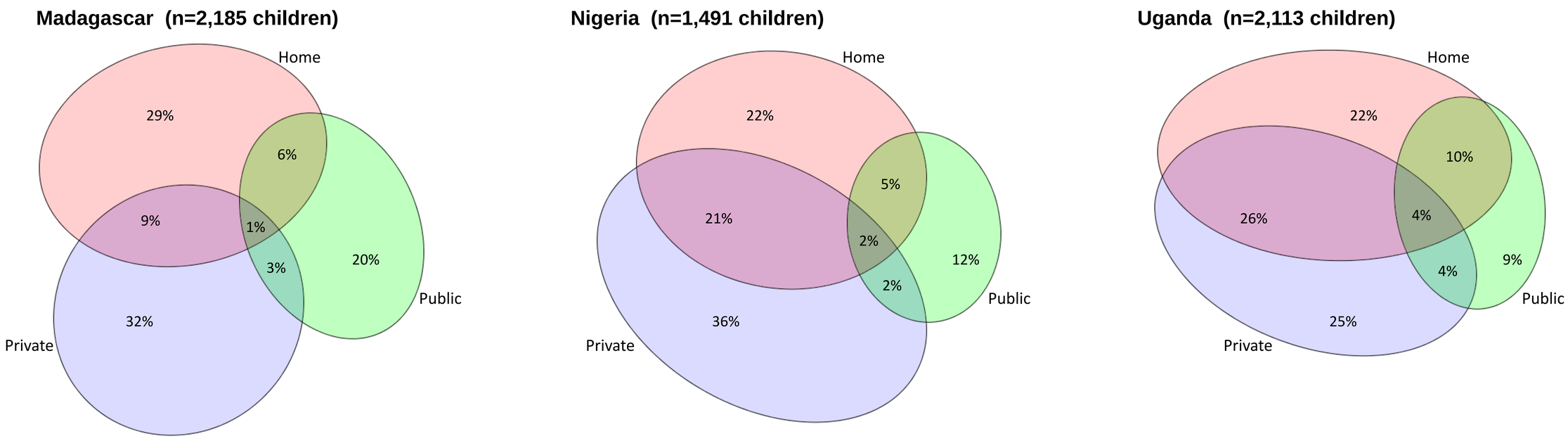
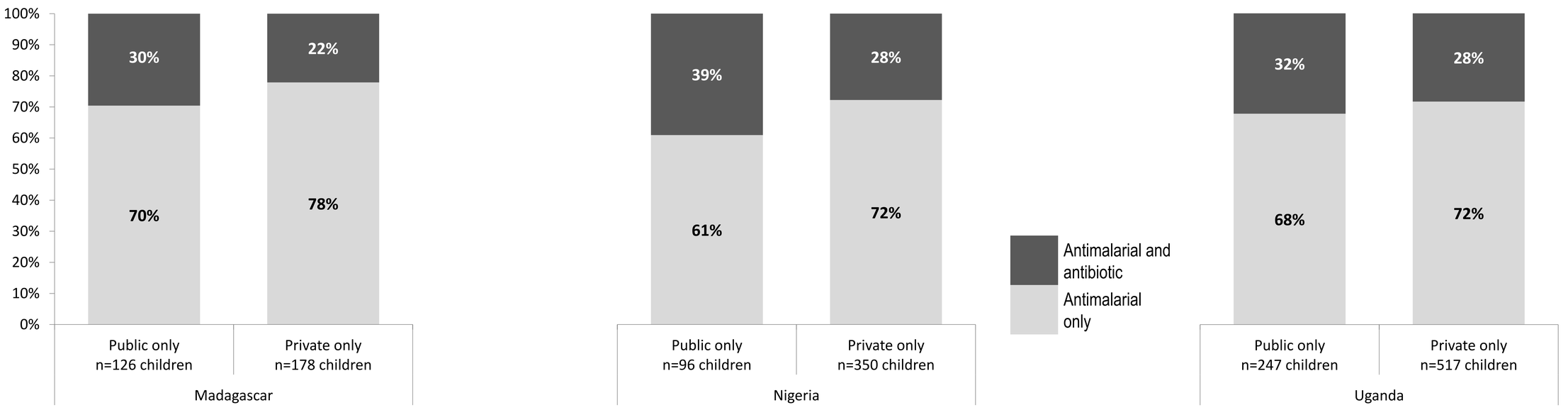


Figure 2. Extent of polypharmacy with antimalarials and antibiotics among children who received any antimalarial during their fever episode, by country and exclusive source visited



DISCUSSION AND FURTHER INFORMATION

Effective case management of childhood fever begins with correct diagnosis. These results show that, even when caregivers seek treatment outside the home, they often administer home treatments first, delaying the opportunity to be tested. Fewer than 1 in 4 children seek treatment in the public sector, traditionally the sector most likely to have diagnostic tests available.

In all countries, 1 in 3 children who received an antimalarial from a given source also received an antibiotic from that source. Such polypharmacy practices could be driven by caregiver's visiting multiple sources during an illness, or due to provider prescribing practices. Ongoing research will unpack these possible drivers, and describe how blood testing and socioeconomic factors are associated with polypharmacy.

ACTwatch is a Population Services International (PSI) research project in partnership with the London School of Hygiene & Tropical Medicine and funded by the Bill & Melinda Gates Foundation and DfID. Poster contents do not necessarily reflect the views of the funders. For more information, please contact: spoyer@psi.org or visit www.actwatch.info

PSI
1120 19TH STREET, NW | SUITE 600
WASHINGTON, DC 20036
PSI.ORG | TWITTER: @PSIHEALTHYLIVES | BLOG:
PSIHEALTHYLIVES.COM