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# A balancing act: Subsidising treatment for Malaria

**Public subsidies may be an effective way to increase access to antimalarial drugs in sub-Saharan Africa, but large subsidies are accompanied by the risk of overtreatment – the use of subsidised drugs by malaria negative patients. Research from Kenya provides useful insights for policymakers considering these subsidies**

Malaria kills nearly one million people every year, with the greatest burden falling on young children in sub-Saharan Africa. In this region resistance has developed to all but one class of antimalarials, called artemisinin combination therapies (ACTs).

In order to support access to this life-saving medication, many malaria-endemic countries now provide free ACTs through public health facilities. But shortages are common, and the rural poor often have to travel far and wait in long lines to access treatment. As a result, many people treat presumed cases of malaria with less effective antimalarials purchased from local drug shops, which are more convenient and open longer hours. Many of these shops do not stock ACTs, and if ACTs are available, they are unsubsidised and therefore unaffordable for the poor.

In this context, one way to increase access to ACTs would be to subsidise them in both the public health and the retail sectors. The risk of such a policy is that it could lead to a sharp increase in overtreatment (use of ACTs by malaria negative patients), especially since rural drug shops are often staffed by individuals with minimal medical qualifications and access to malaria diagnostic services is limited. The overtreatment risk could be mitigated by jointly subsidising malaria treatment and malaria diagnosis, but the effectiveness of such a policy would depend on both demand for diagnosis and compliance with test results.

These observations raise a number of important questions: would subsidised ACTs sold through the retail sector mostly go to the malaria positive, or the malaria negative? Can the subsidy level be used to target ACTs to the malaria positive? Would an RDT subsidy improve targeting? Answering these questions is essential for countries deciding whether to spend scarce malaria control resources on retail-sector subsidies.

In 2009 Jessica Cohen, Pascaline Dupas and I conducted a randomised evaluation in rural Kenya to shed light on these issues. In our paper we randomly assigned households to one of four different retail-sector ACT subsidy regimes: (i) no subsidy, (ii) an 80 percent subsidy, (iii) an 88 percent subsidy, and (iv) a 92 percent subsidy (this corresponds to the original subsidy

level targeted by the Kenyan government during a large scale pilot of retail sector ACT subsidies). We also randomly assigned a subset of households in groups ii-iv to receive either free or heavily subsidised rapid diagnostic tests (RDTs) for malaria. These tests can be easily performed by staff with minimal medical training and are generally more accurate than microscopy (the traditional method of malaria diagnosis) in rural settings.

Our findings offer the following insights for policy:

### **1. A retail-sector ACT subsidy dramatically increases overall use of ACTs.**

Without a subsidy, only 19 percent of malaria-like illnesses are treated with an ACT. This share increases to 35-42 percent under a 80-92 percent subsidy, reflecting both positive changes (use by patients with malaria) and negative changes (overuse by malaria-negative patients).

### **2. The ACT subsidy level is a useful tool for targeting medication to the truly malaria positive.**

When the ACT subsidy is high (92 percent), use of the drug increases among both children (who are very likely to have malaria conditional on seeking treatment) and adults (who are much less likely to have malaria conditional on seeking treatment). Lower subsidy levels discourage adult purchases while leaving ACT use among young children essentially unchanged. As a result, reducing the ACT subsidy from 92 to 80 percent increases the share of retail-sector ACT takers who test malaria positive from 56 to 75 percent without meaningfully reducing the share of true malaria cases treated with an ACT.

### **3. RDT subsidies may improve the efficacy of ACT subsidies, provided patients act on their results.**

We find that households are very willing to take subsidised RDTs – as a result the RDT subsidy doubles the share of illness episodes tested for malaria – but most patients who received a negative RDT result still chose to take ACTs anyway. As a result, we find little evidence that the RDT subsidy reduces overuse of ACTs by malaria-negative patients. Our study only looks at very short-run compliance with RDT test results, and most of the individuals in our sample had never heard of RDTs before, so it is possible that RDT compliance would increase over time as individuals learn about the accuracy of the test.

In sum, our results offer the following insights for policy-makers grappling with whether (and by how much) to subsidise ACTs and RDTs:

- Retail-sector ACT subsidies can dramatically increase ACT access among populations underserved by the public health system.
- Not all subsidy levels are created equal: if the subsidy is “too low” malaria positive individuals will go untreated, while “too high” a subsidy will result in overuse of ACTs by malaria-negatives. Thus, finding the right subsidy level to balance these

concerns is key.

- RDT subsidies may be a useful tool to improve the efficacy of an ACT subsidy policy, but it is important to ensure that individuals actually comply with their test results. Supporting interventions meant to increase rates of RDT compliance could improve the efficacy of an RDT subsidy policy, at least in the short run.

Overall, this is good news for countries with limited malaria control budgets: retail-sector ACT subsidies can expand access to those who need the drug most, but subsidies do not have to be as large as initially planned by the policy community. Of course, it is important to keep in mind that our study was conducted in a rural, malaria-endemic area. Overuse of subsidised ACTs and compliance with RDTs (and accordingly the attractiveness of a retail-sector ACT subsidy) could be different in wealthier, better-connected areas with a lower malaria burden.