Malaria admissions and deaths have declined in Lao PDR since 2000. However, a 2011 outbreak in the southern provinces was associated with a spike in cases and deaths. Case numbers have not returned to seasonal lows observed prior to 2011.

METHODS
A 2015 malaria outlet survey was conducted in 5 southern provinces. A census of public and private outlets with potential to distribute malaria testing and/or treatment was conducted among a representative sample of administrative units. A total of 7,866 outlets were screened for availability of malaria testing and treatment. An audit was completed for all antimalarials, malaria rapid diagnostic tests and microscopy. The audit captured product information, retail price and amount distributed to consumers during the last week.

RESULTS
Are public health facilities equipped to confirm all suspected malaria cases and treat with first-line Artemisinin Combination Therapy? Nearly all screened public health facilities had the national first-line artemisinin combination therapy (ACT) used for both Pf and Pv, as artether lumefantrine (AL) in stock at the time of the survey. 88% had both AL and confirmatory testing available. Primaquine is part of the treatment guidelines for Pf and Pv however availability was very low (5%). Operational guidelines for dispensing primaquine were not yet in place in 2015 (Figure 1).

Are private sector outlets equipped to confirm all suspected malaria cases and treat with first-line ACT? Among antimalarial-stocking private sector outlets, fewer than half had AL (41%) and confirmatory testing (46%) available, and 39% had both testing and AL available. Primaquine was not found in the private sector. Readiness to test and appropriately treat was notably higher among private health facilities (61%) and pharmacies (49%) as compared with general retailers (3%) (Figure 2).

To what extent are non-first-line antimalarials available in the public and private sectors? Chloroquine is a second-line treatment for PF and as such should be used in the case of ACT treatment failure. Chloroquine was widely available in the private sector (78%), including among half of private sector facilities (49%), 75% of pharmacies and 97% of general retailers. 1 in 5 Community Health Workers (CHWs) had chloroquine in stock. Antimalarials that are not indicated for use in the national treatment guidelines were found in about 1 in 10 private sector outlets (14%). Most of the products available that are not indicated in national treatment guidelines were chloroquine syrups and injections (Figure 3).

What antimalarials are most commonly distributed in Lao PDR, and by which outlet types? All antimalarials distributed in study areas were either AL or chloroquine treatments. AL accounted for 38% of the market share and chloroquine for 62%. The private sector was responsible for more than half of all antimalarial distribution (68%), including distribution by pharmacies (53%), private for-profit health facilities (7%) and general retailers (7%) (Figure 4).

CONCLUSION
- Malaria testing and treatment landscape in southern Lao PDR
- Antimalarial market share relative to first-line treatment
- Public health facility availability of malaria testing and treatment
- Private sector availability of malaria testing and treatment
- Number of boxes of oral artemisinin monotherapy found

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