

Julie Archer¹, Godéfroid Mpanya², Stephen Poyer³, Antoinette Tshetu⁴, Willy Onema², Jamie Ciesla², Joris Losimba Likwela⁵, Vamsi Vasireddy¹, Kevin Duff⁶, Megan Littrell⁶.

¹Independent consultant, ²Association de Santé Familiale, ³PSI, ⁴Ecole de Santé Public de Kinshasa, ⁵National Malaria Control Program DRC, ⁶ACTwatch/PSI

BACKGROUND

Malaria is the leading cause of illness and death in the DRC and the malaria burden is estimated to be the second highest in the world, behind Nigeria. Improving health system performance in this setting is critical for reducing the global malaria burden.

Appropriate case management of fever requires the availability of diagnostic tests for malaria and quality-assured ACT (QAACT) to treat confirmed cases. Household survey results suggest that the private sector is the first source of advice or treatment for 60% of child fever cases in urban areas in DRC. Thus access to malaria blood testing and appropriate treatment in both the public and private sectors is crucial.

ACTwatch outlet surveys were conducted in the DRC in 2009 and 2013 to provide evidence to inform and monitor strategy and funding decisions to improve malaria case management. ACTwatch surveys provide estimates for antimalarial availability, price, and market share as well as availability of blood testing.

METHODS

Antimalarial market surveys were conducted in Kinshasa as part of the ACTwatch project in 2009 (August-September) and 2013 (September-October).

A census of all outlets with the potential to sell or distribute antimalarials was conducted within a representative sample of clusters (aire de santé) across the province. A provider interview, antimalarial audit and malaria rapid diagnostic test (RDT) audit were conducted among outlets meeting the study eligibility criteria (**Table 1**).

Product information, sales/distribution in the previous week, and retail price were collected for each antimalarial in stock. Product and distribution information was used to calculate relative market share using the adult equivalent treatment dose (AETD) as the unit of analysis. The median price of one AETD was calculated for tablet formulations.

Table 1. Sample summary

	2009	2013
Number of outlets		
Outlets approached	2,424	3,652
Outlets screened	2,368	3,366
Outlets eligible, interviewed and included in analysis	778	977

RESULTS

Antimalarial market composition was similar in 2009 and 2013 and dominated by unregulated drug shops. Drug shops accounted for 77% of antimalarial-stocking outlets in 2013. Private for-profit health facilities comprised 17% of the market (**Fig 1**).

Between 2009 and 2013 the availability of oral artemisinin monotherapy fell from 26% to 0% in the public sector and from 70% to <1% among private sector outlets. There was no change in the availability of quality-assured ACT (QAACT) over the same period, though the availability of non-QA ACT increased among private sector outlets from 61% in 2009 to 82% in 2013 (**Fig 2**). Most non-QA ACTs available in the private sector (5,982 non-QA ACTs audited) were suspension formulations of AL (36%) and DHA PPQ (9%), or non-QA AL tablets (31%) (**Fig 3**).

The private sector distributes the majority of antimalarials in Kinshasa (96% in 2009 and 97% in 2013, **Fig 4a**). Antimalarials are distributed in the private sector primarily through drug shops. Drug shops accounted for 89% of the total antimalarial market share in 2013 (data not shown). Non-artemisinin therapies are the most commonly distributed antimalarial, comprising 50% of the market in 2013. Within the private sector, non-QA ACT market share increased from 19% to 40%. Oral artemisinin monotherapy market share decreased from 11% to almost zero (**Fig 4b**).

The median price of one QAACT adult equivalent treatment dose (AETD) was 15 times more expensive than the price of one SP AETD among drug shops. A limited number of QAACTs were available free of charge in private facilities (**Fig 5**).

Availability of malaria blood testing was above 85% among antimalarial-stocking public and private health facilities in 2009 and remained unchanged in 2013. The malaria blood testing most commonly available was microscopy, although RDT availability increased among public facilities (2009 3%, 2013 31%) and private facilities (2009 5%, 2013 18%) (**Fig 6**).

Fig. 1 Market composition 2013

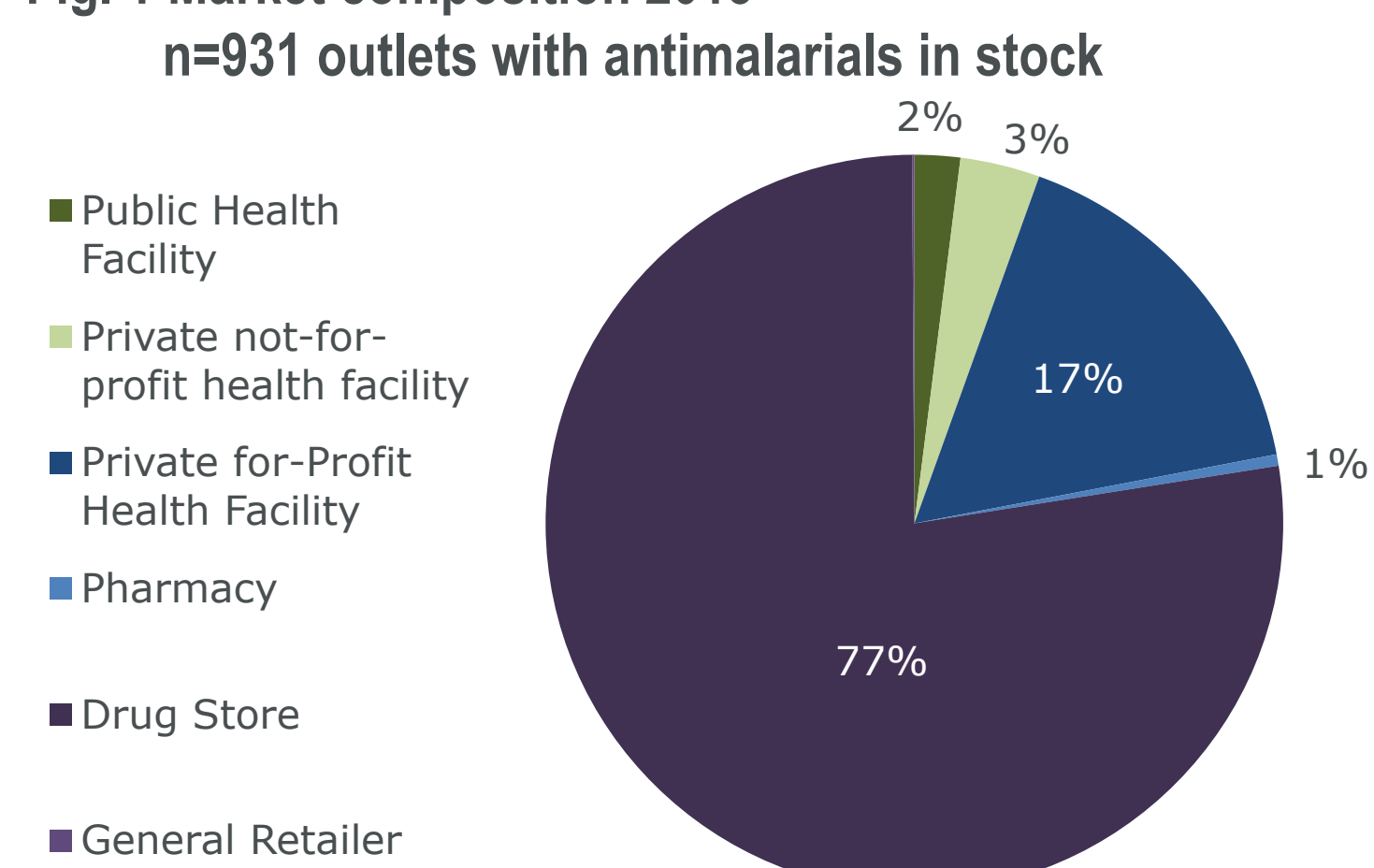


Fig. 3. Distribution of non-QA ACT available in the private sector, 2013

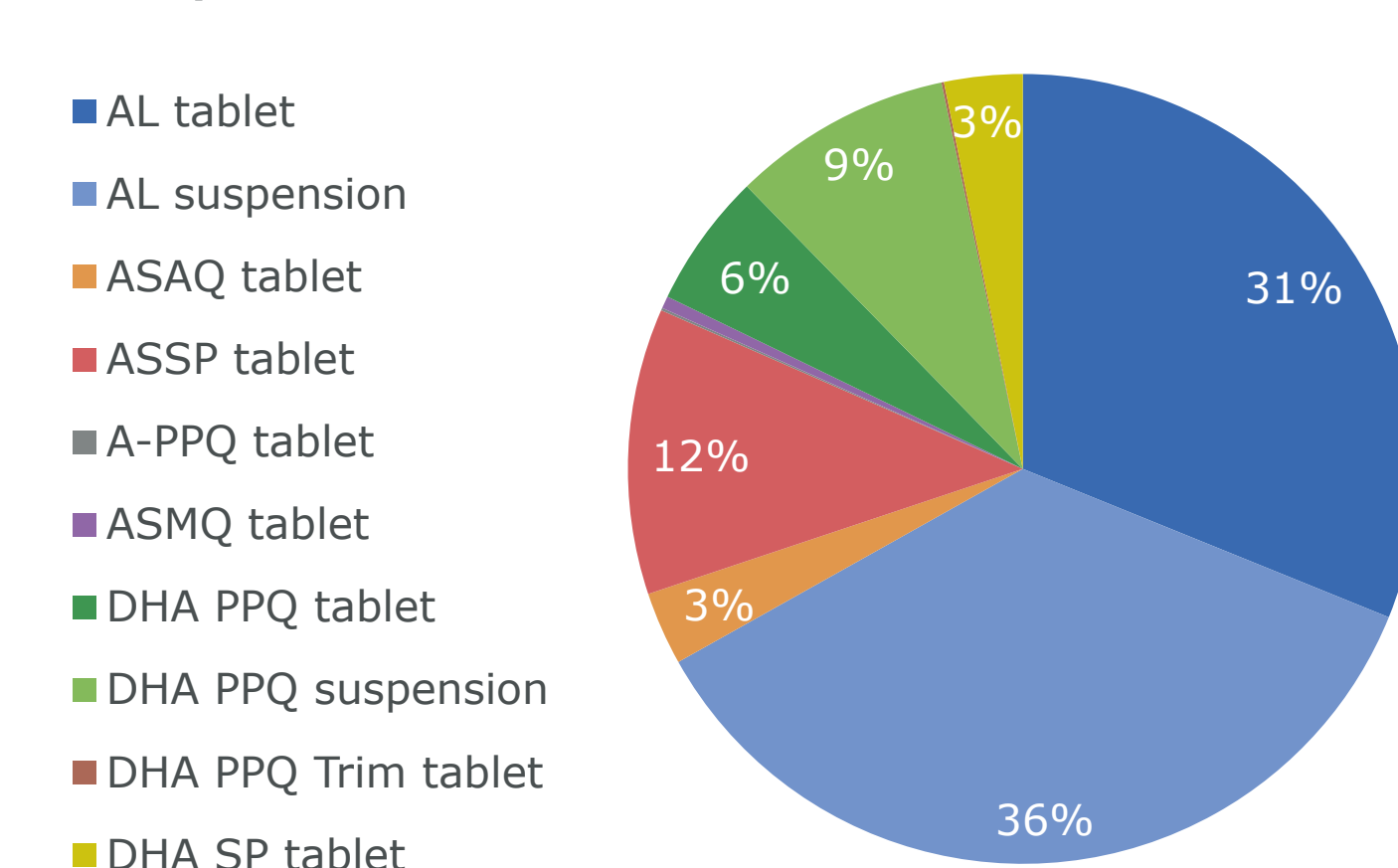


Fig. 2 Antimalarial availability among outlets with antimalarials in stock, 2009 and 2013

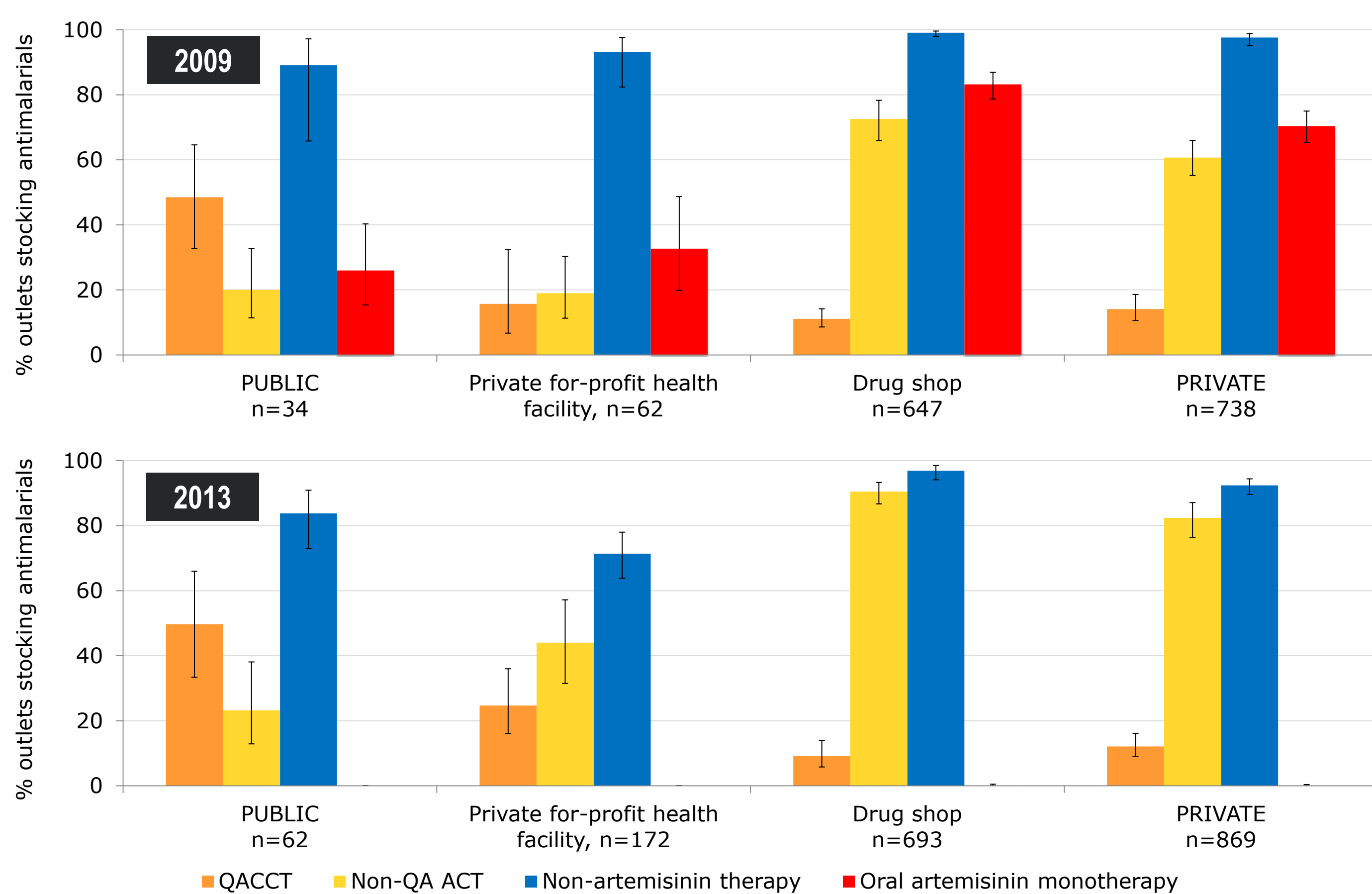


Fig. 4a Total market share by sector, 2009 and 2013

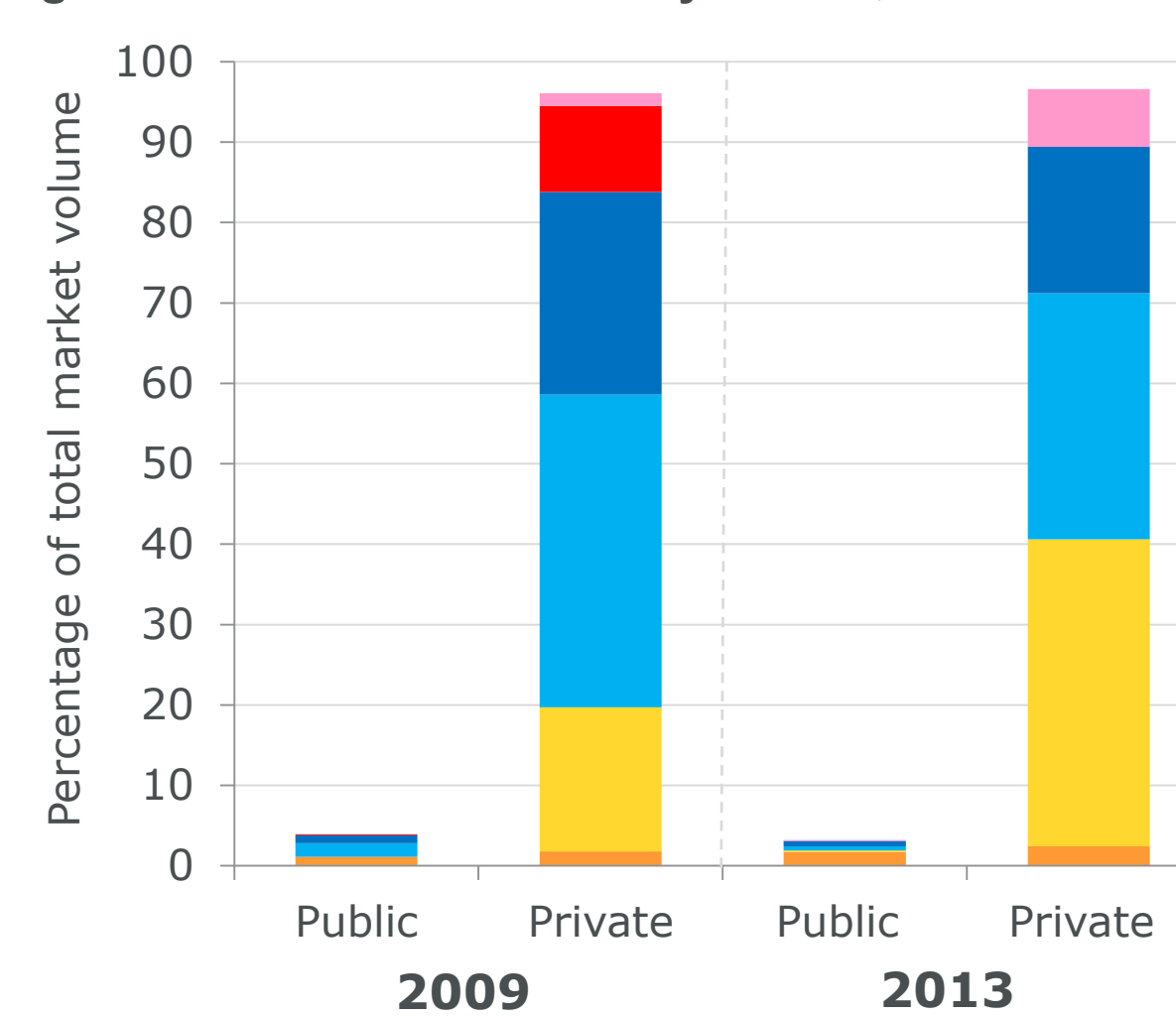


Fig. 4b Relative market share within sector, 2009 and 2013

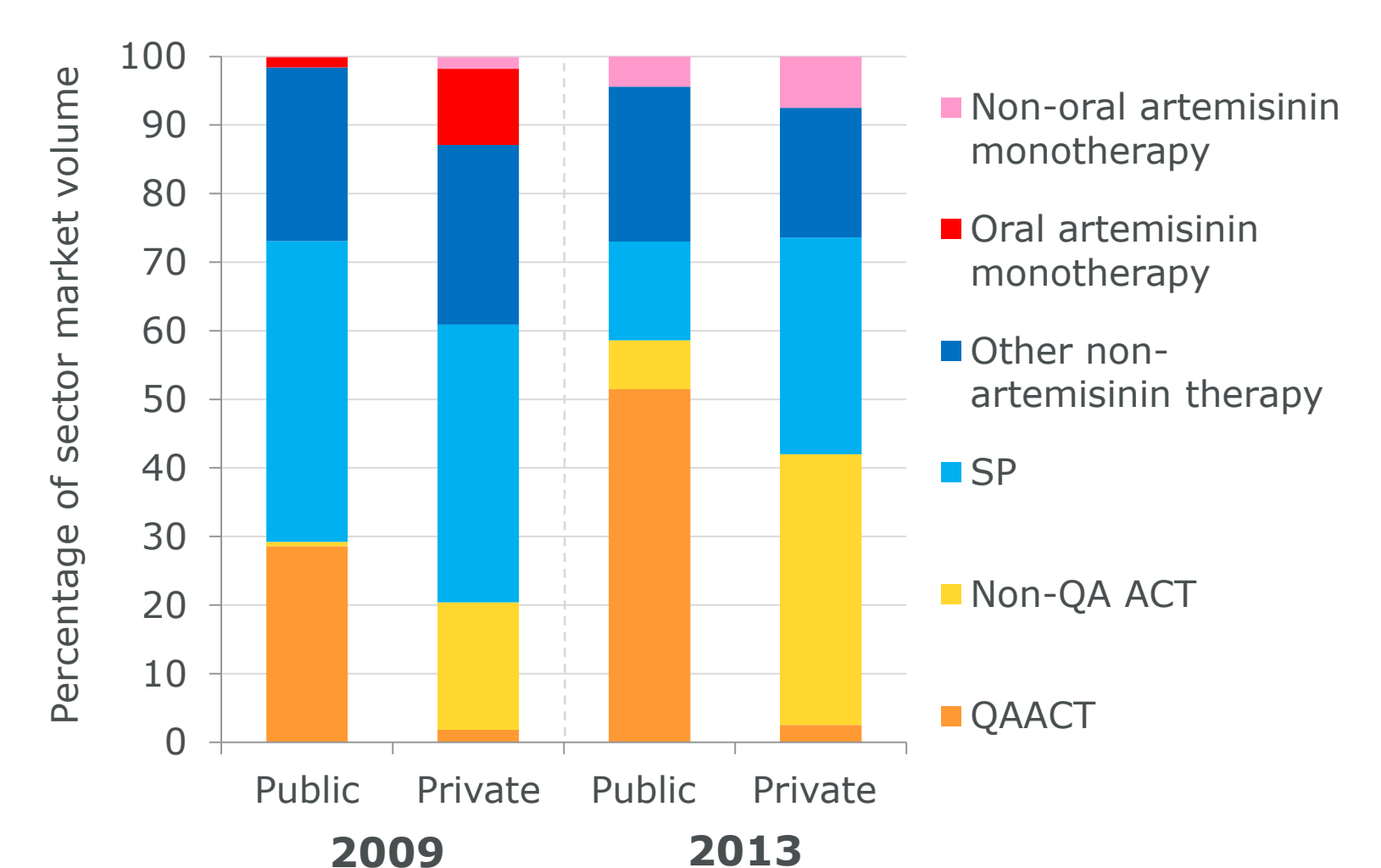


Fig. 5 Private sector median price of one tablet adult equivalent treatment dose, 2013

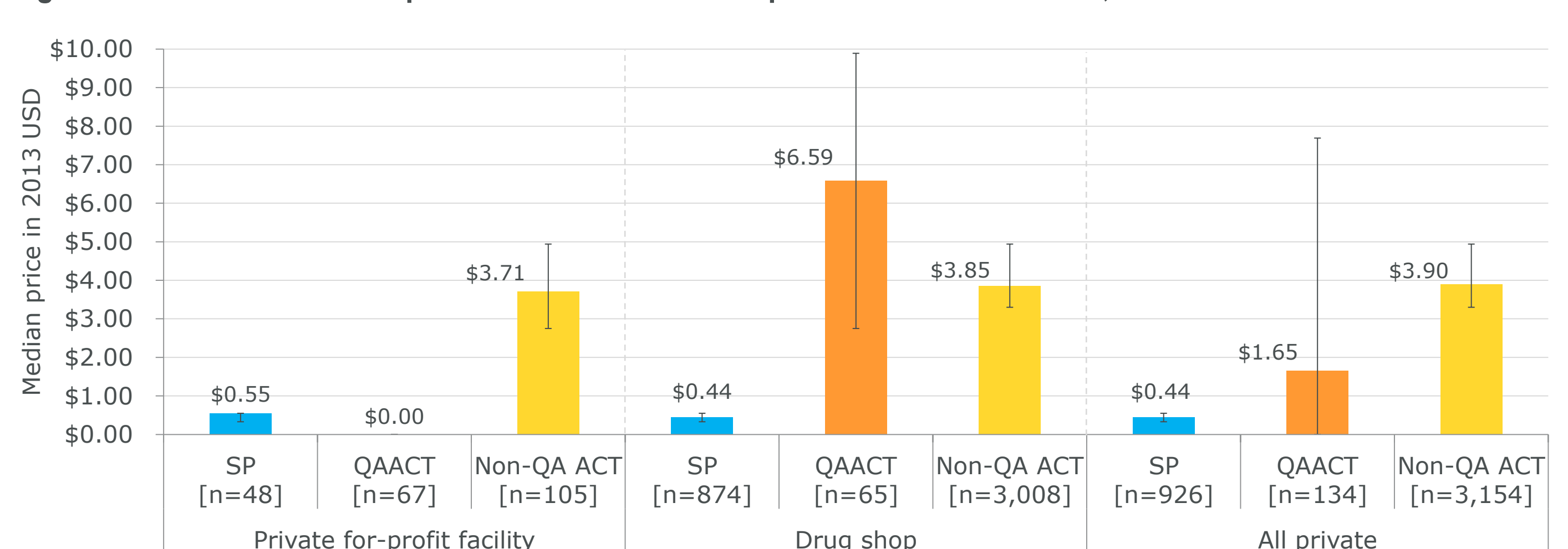
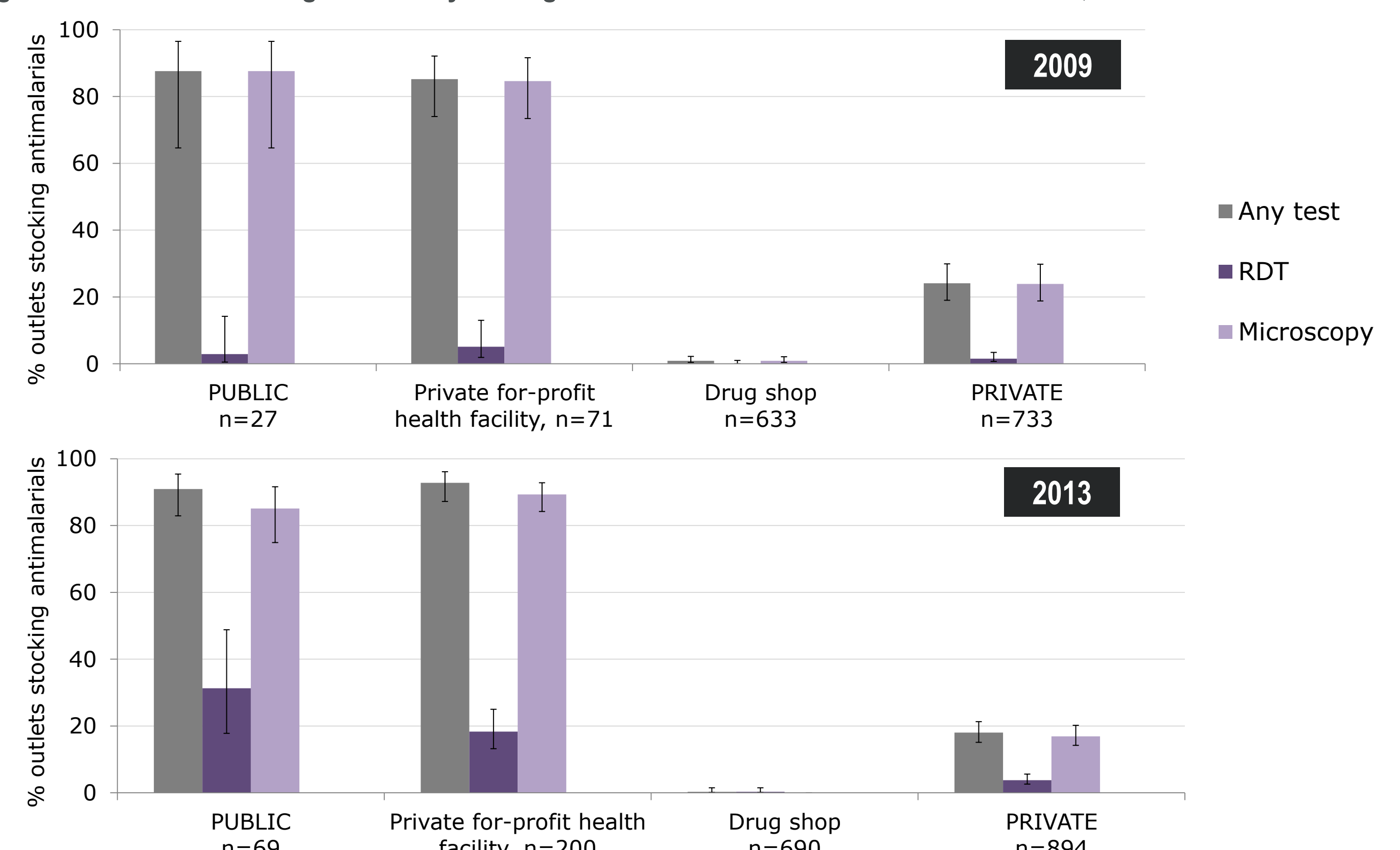


Fig. 6 Malaria blood testing availability among current and recent antimalarial stockists, 2009 and 2013



DISCUSSION

Unregulated drug shops continue to dominate the antimalarial market in Kinshasa both in terms of absolute number of outlets and their market share. These facilities do not provide diagnostic testing and most frequently sell non-artemisinin therapies (SP and quinine tablets) or non-QA ACT, neither of which are the most effective treatments for malaria. Drug shops sell SP and non-QA ACT at a lower cost relative to QAACT. Tablet ACT prices in the private sector are high and unaffordable for most people living in Kinshasa. Coverage of malaria rapid diagnostic testing is suboptimal in all facility types. Increase coverage of appropriate malaria case management in Kinshasa will require improving the availability of affordable quality-assured ACTs and rapid diagnostic testing.

