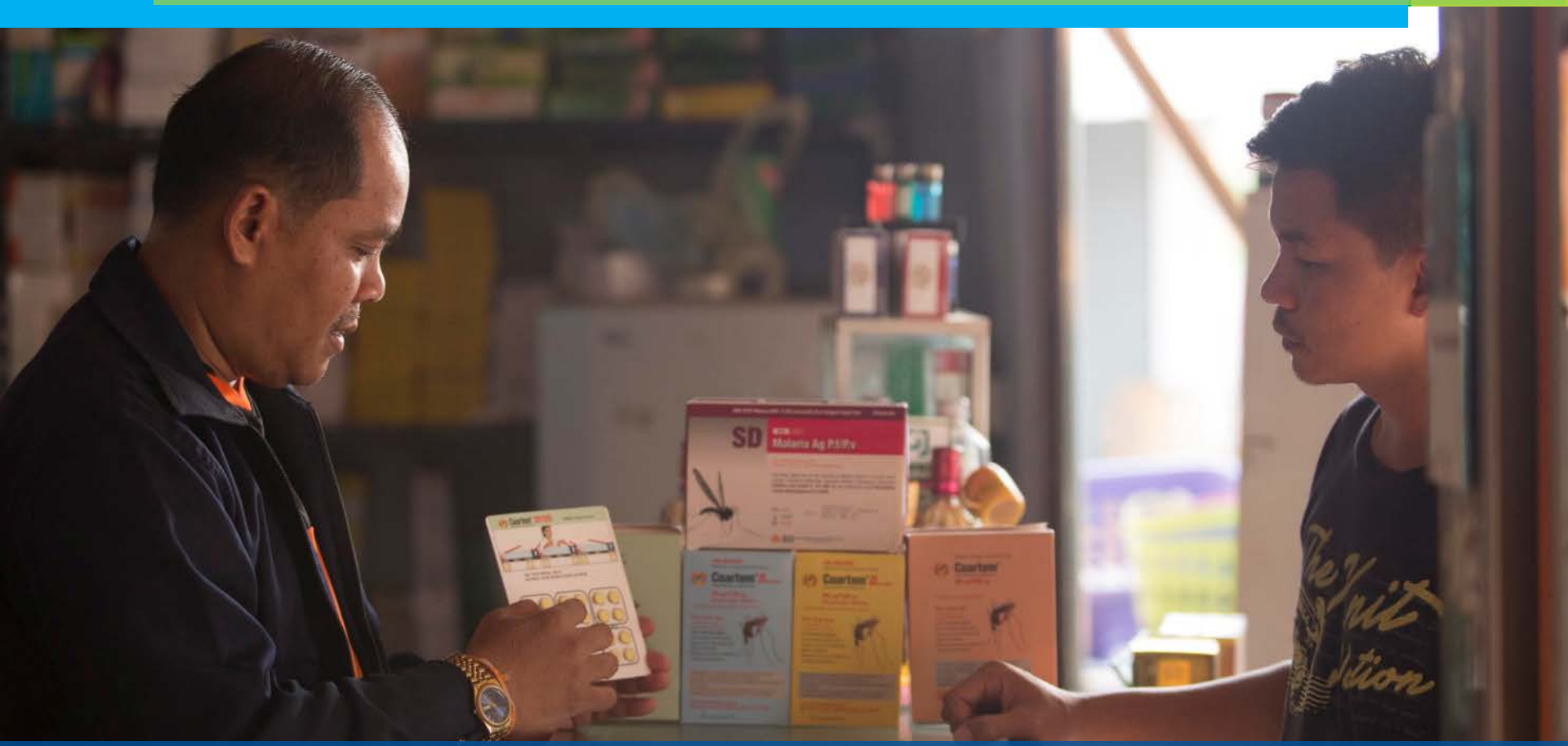


Lao PDR 2015 Outlet Survey Findings

October 25th

ACTwatch
Evidence for Malaria Medicine Policy

psi
Healthy lives. Measurable results.

Presentation outline

ACTwatch project

Outlet survey methods

Results

- Antimalarial and test landscape overview
- Antimalarial availability
- Malaria blood testing availability
- Antimalarial sale and distribution, & market share
- Antimalarial diagnostic market share
- Antimalarial price
- Provider knowledge and characteristics
- Training, supervision, and reporting in the private sector

Conclusions

ACTwatch
Evidence for Malaria Medicine Policy

psi
Healthy lives, Measurable results.

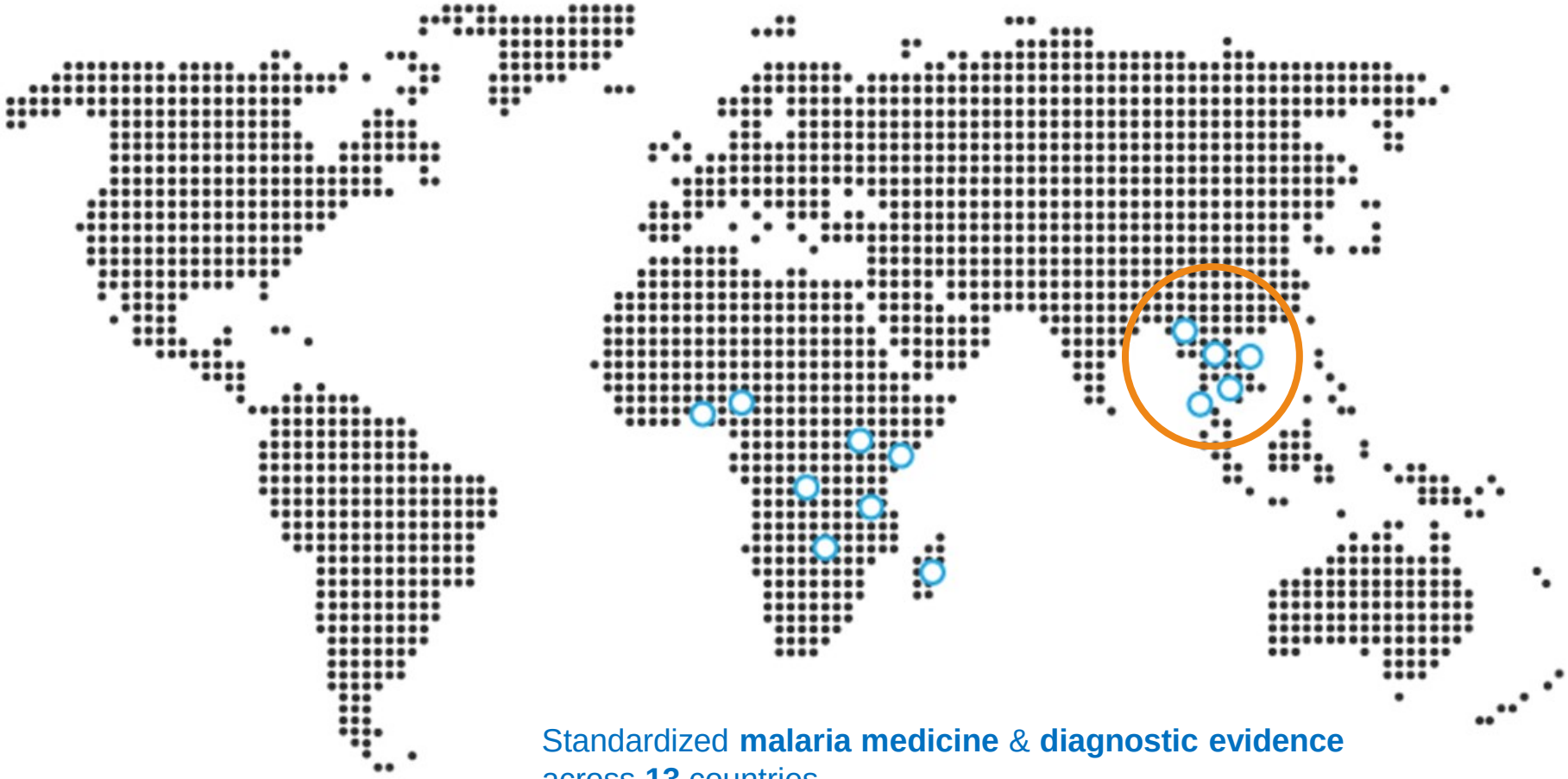
Background



ACTwatch Project

Evidence for Malaria Medicines Policy

ACTwatch countries



Standardized **malaria medicine** & **diagnostic evidence** across **13** countries

BILL & MELINDA GATES foundation

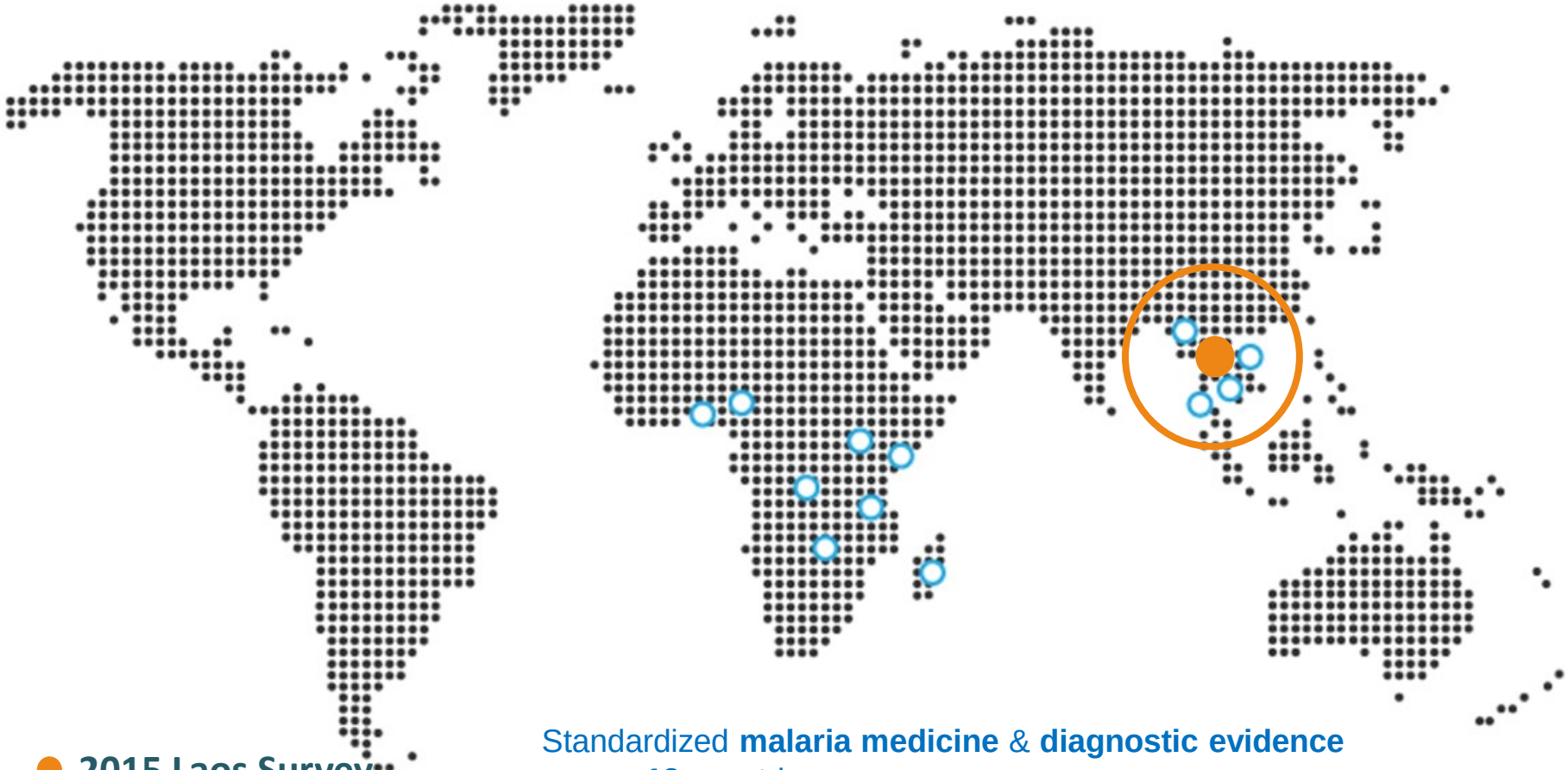
UNITAID

Department for International Development

UKaid from the British people

psi Healthy lives. Measurable results.

ACTwatch countries



● 2015 Laos Survey

Standardized **malaria medicine** & **diagnostic evidence** across **13** countries

BILL & MELINDA GATES foundation

UNITAID

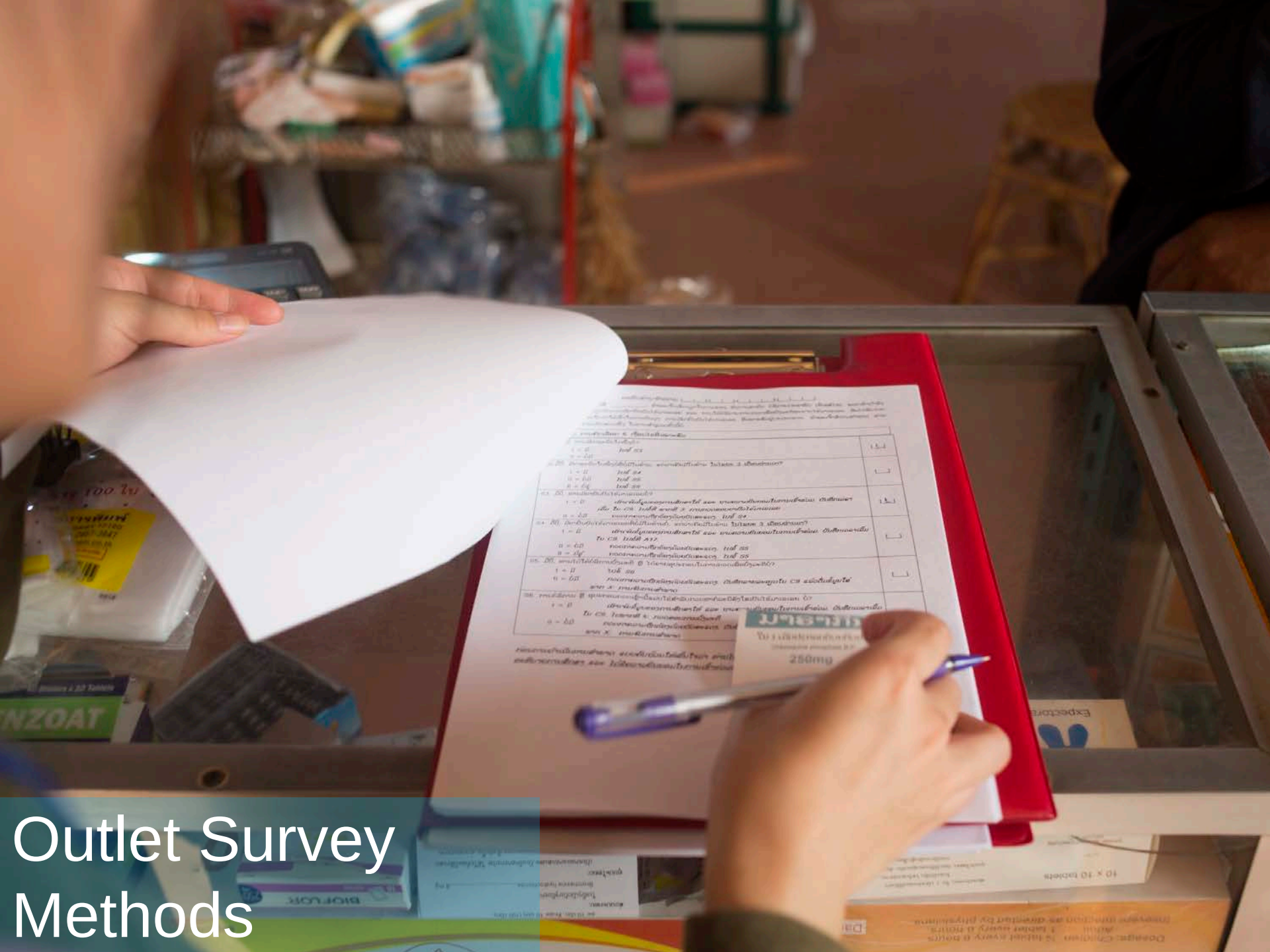
Department for International Development

UKaid from the British people

psi Healthy lives. Measurable results.

ACTwatch relevancy in Lao PDR

- Lao PDR has set the goal of eliminating malaria by 2030.
- Accelerating progress toward malaria elimination in Lao PDR will require high coverage of appropriate management of suspected malaria cases.
- ACTwatch evidence helps monitor this goal & identify where adjustments to policy, strategy, and funding decisions may be needed to help meet it and increase coverage for case management.



Outlet Survey Methods

What is an outlet in Laos?

Public Health Facility

(Provincial Hospitals, District Hospitals and health centers)

Community Health Worker (CHW)

(Village Health Workers and Mobile Outreach Workers)

Private For-profit Health Facility

(Private hospitals, clinics, and diagnostic laboratories)

Pharmacy

(These include Levels 1, 2 and 3 pharmacies as well as clinical pharmacies)

Drug Store

(Drug stalls in rural markets and shops)

General Retailer

(Grocery stores and village shops)

Itinerant Drug Vendor

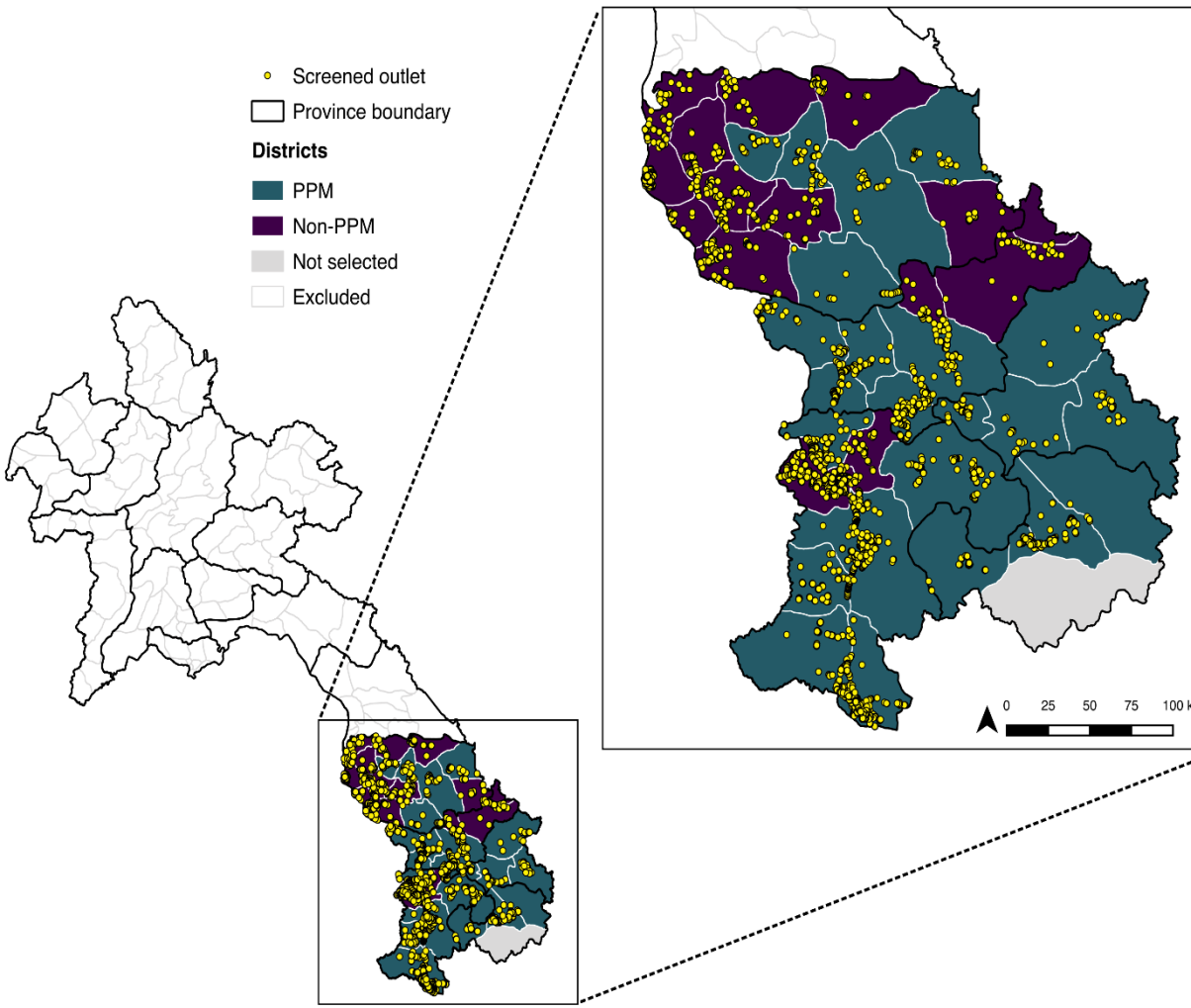
(Mobile drug vendors)

psi

Healthy lives, Measurable results.

What areas were selected?

- Representative sample from 5 Southern Provinces
- 41 of 42 districts.
- Cluster: village groups
  - Public-private mix (PPM) program (25 districts)
  - Non-public-private mix program (16 districts)



How were outlets selected?

1) Complete census of all potentially eligible outlets



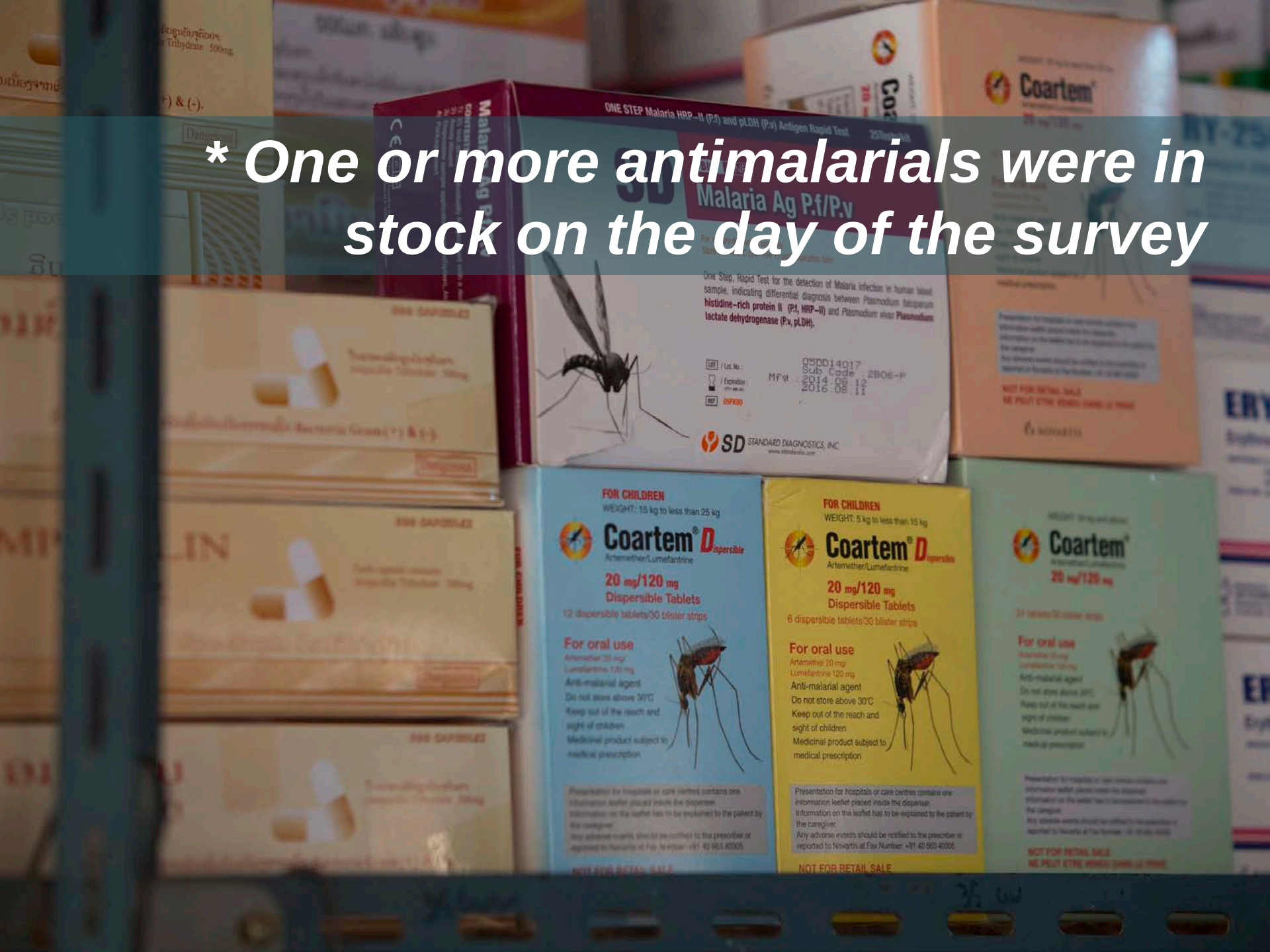




2) Screen for antimalarials in stock or malaria blood testing availability







* One or more antimalarials were in stock on the day of the survey


*One or more antimalarials were in stock in the three months preceding the survey


*Malaria blood testing (microscopy or rapid diagnostic test) was available

3) When products are in stock: product audit





4) Product audit

TABLET, SUPPOSITORY & GRANULE DRUG AUDIT SHEET (TSG) OUTLET ID: [__|__|__]-[__|__|__]-[__|__|__]-[__|__|__]

Sub-outlet code		1. Generic name	2. Strength	2a. Is this base strength?	3. Dosage form/formulation	4. Brand name *(Include weight and age information)*
[____] Product number [__|__]	[__|__] [__|__] [__|__]		[__|__|__].[__]mg [__|__|__].[__]mg [__|__|__].[__]mg	[__] 1 = Yes 0 = No 8 = Don't know [__] *If no, specify salt:* [_____]	1 = Tablet 2 = Suppository 3 = Granule [__]	

5. Manufacturer	6. Country of manufacture	7. Package size	8. Is product a fixed-dose combination (FDC)	9. Does product have the Green leaf logo?	10. Amount sold/distributed in the last 7 days to individual consumers (*Record # of packages / tins described in Q7 OR record the total # of tablets / suppositories / granule packs sold*)	11. Stocked out at any point in the past 3 months?
	[__|__|__]	There are a total of [__|__|__|__] tablets/ suppositories/ granule sachets in each: 1 = Package 2 = Pot/tin [__]	1 = Yes 0 = No 8 = Don't know [__]	1 = Yes 0 = No 8 = Don't know [__]	This outlet sold [__|__|__] **packages/ tins** in the last 7 days **OR** This outlet sold [__|__|__] **tablets/ suppositories or granule sachets** in the last 7 days *Not applicable = 995; Refused = 997; Don't know = 998*	1 = Yes 0 = No 8 = Don't know [__]

12. Retail selling price	13. Wholesale purchase price	14. Why do you stock this medicine [SHOW PRODUCT]? *Do not read list.* *Circle ALL responses given*	15. Comments
[__|__|__] **tablets, suppositories or granule sachets** cost an individual customer [__|__|__|__|__] USH	For the outlet's most recent wholesale purchase [__|__|__|__] **tablets, suppositories or granule sachets** cost [__|__|__|__|__|__] USH	Free supply A; Profitable B; Recommended by the government C; Low price D; Customer demand or preference E; Positive brand reputation F; Often prescribed by doctors G; Most effective for treating malaria H; Don't know X; Other Z; *specify* [_____]	
Free = 00000 Refused = 99997 Don't know = 99998	*Free = 000000 Refused = 999997 Don't know = 999998*		

Tablet Audit Sheet [__|__] of [__|__]

Antimalarial product in stock

Formulation (tablet, syrup, injection, etc.)

Brand/generic names

Strength

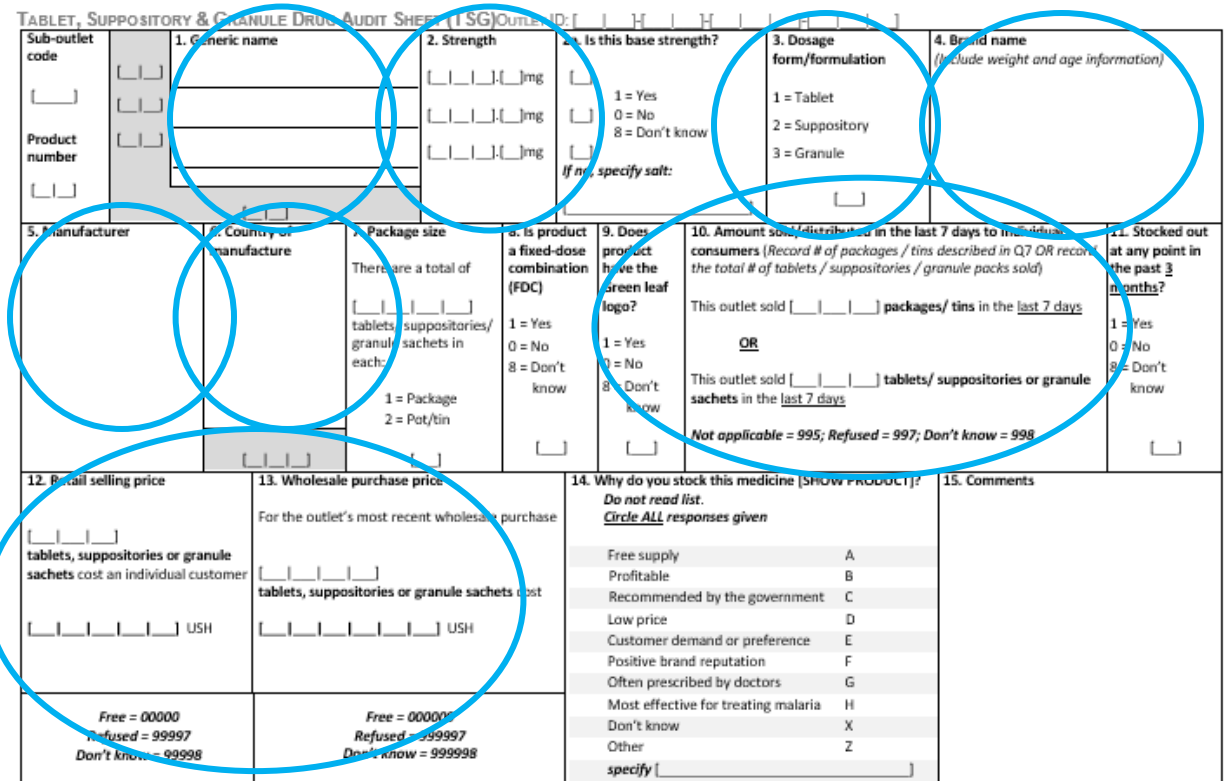
Manufacturer

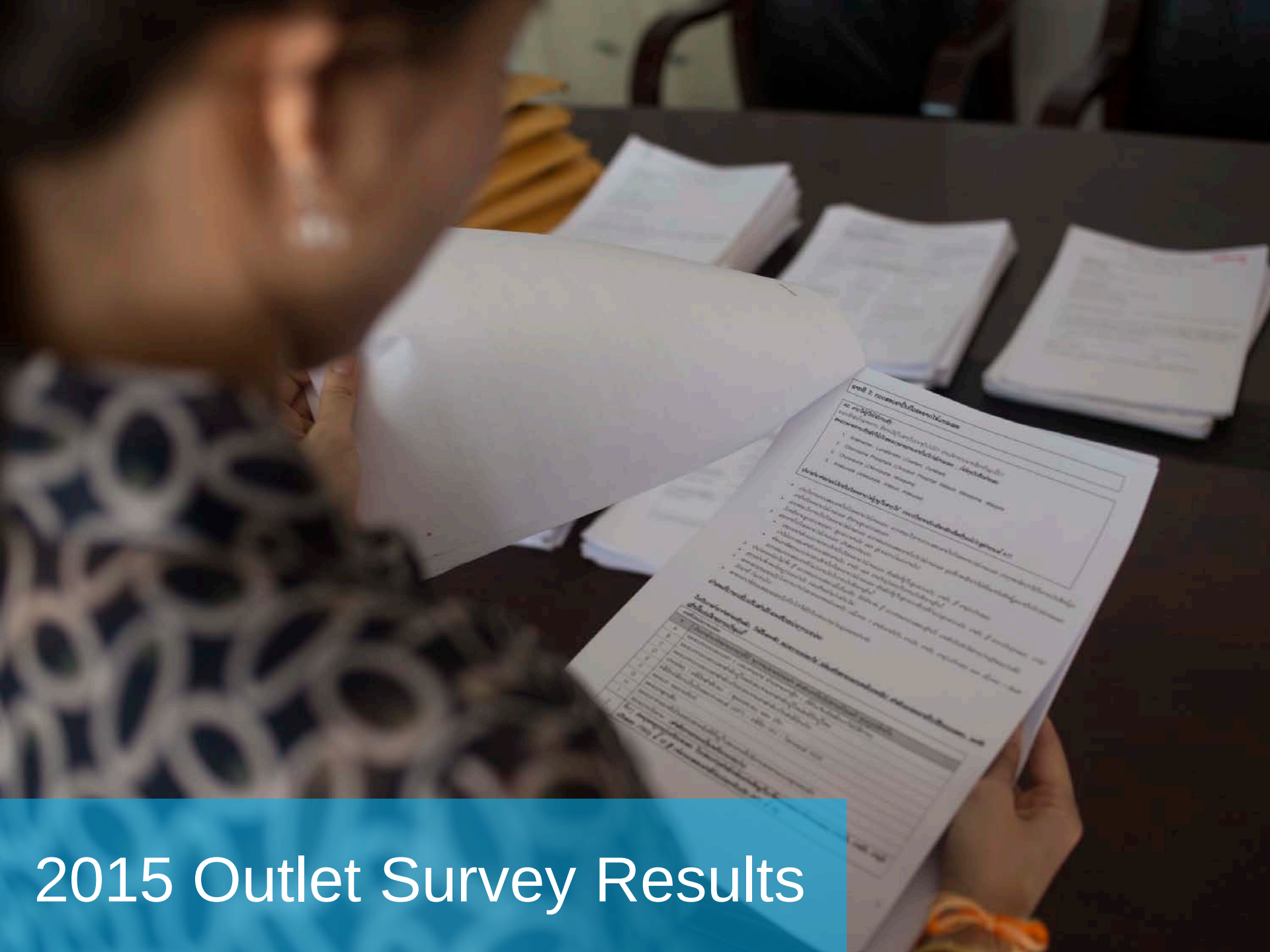
Country of manufacture

Amount distributed in the past week

Retail & wholesale price

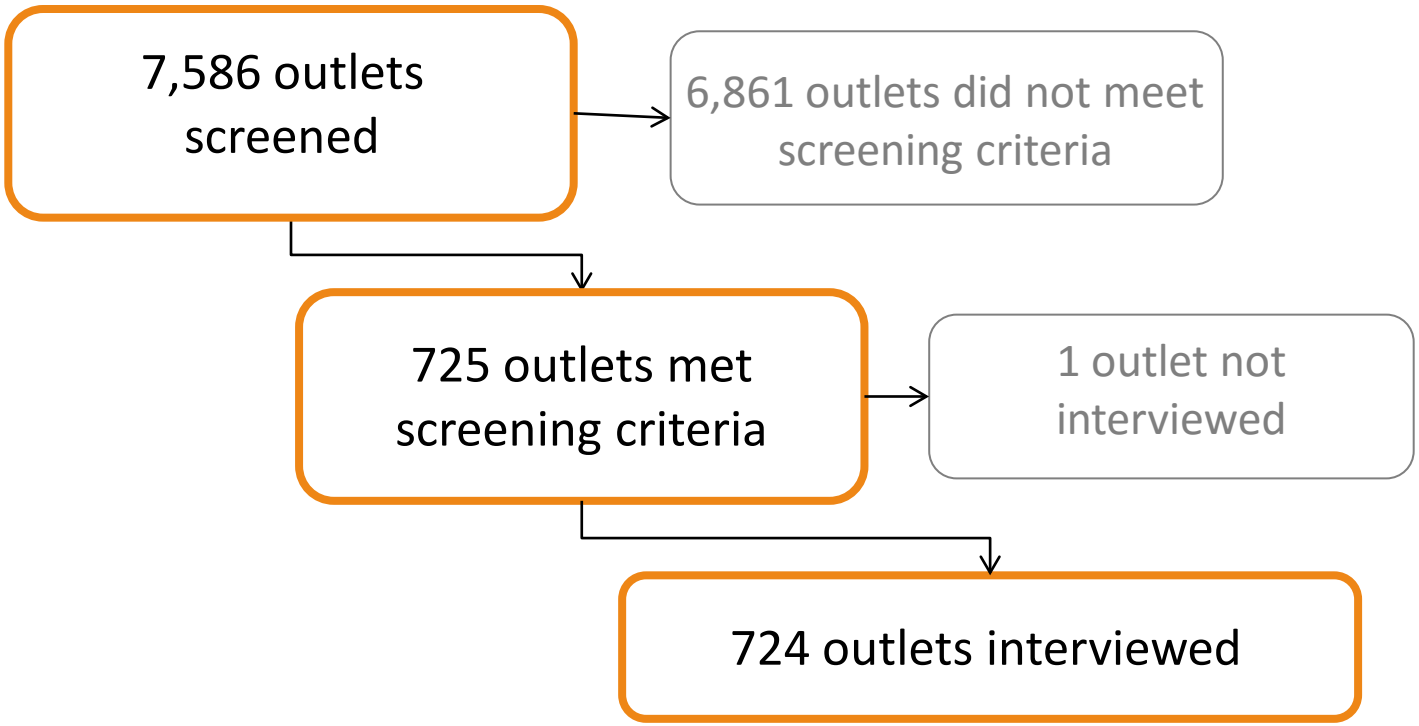
mRDT product in stock





2015 Outlet Survey Results

Outlet survey sample in 2015



Outlets in the 2015 sample

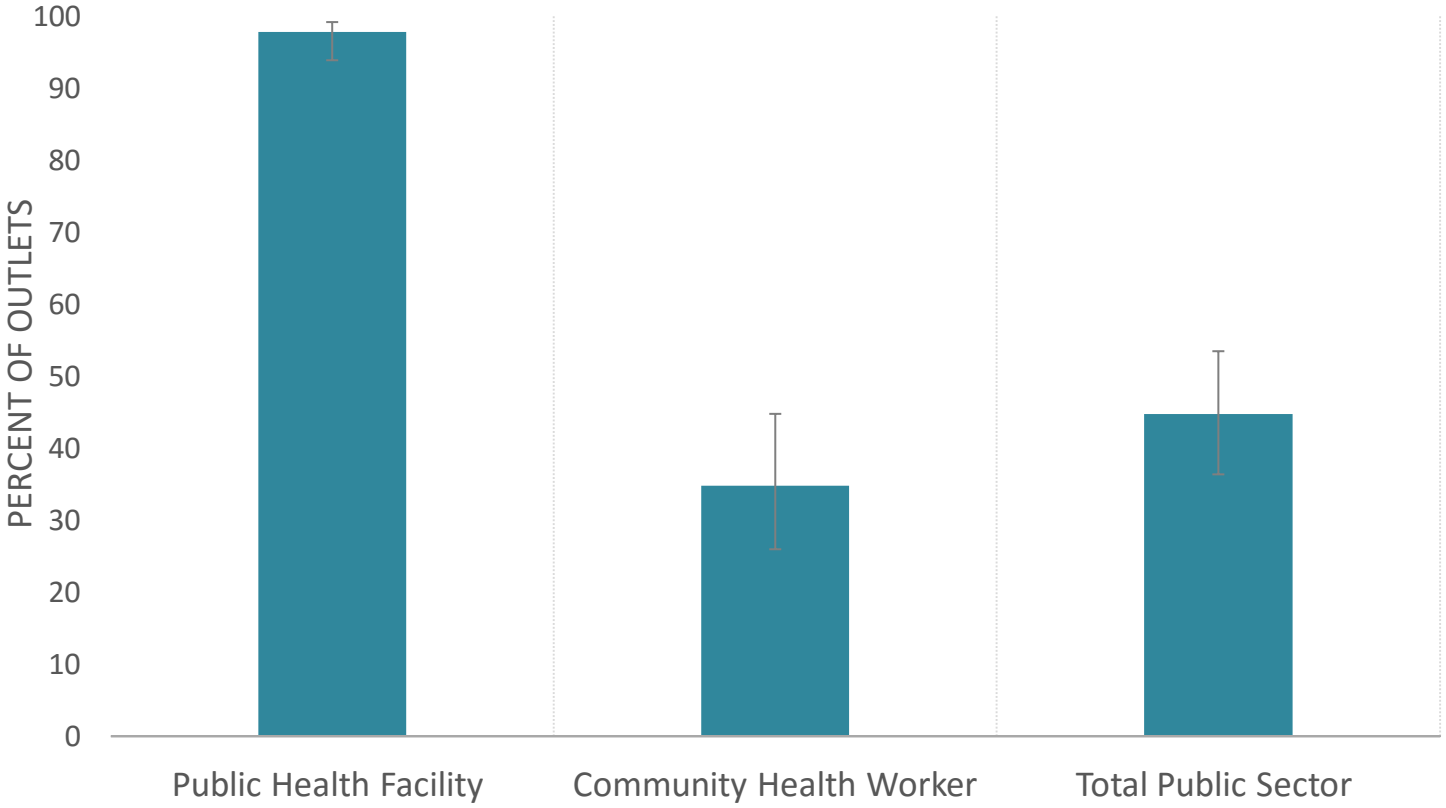
724	number of outlets in the sample
630	number of outlets with antimalarials in stock
49	stocked antimalarials in the last three months but not on the day of survey
45	stocked malaria diagnostic tests but not antimalarials

What does the antimalarial landscape look like?



Are antimalarials available in the public sector?

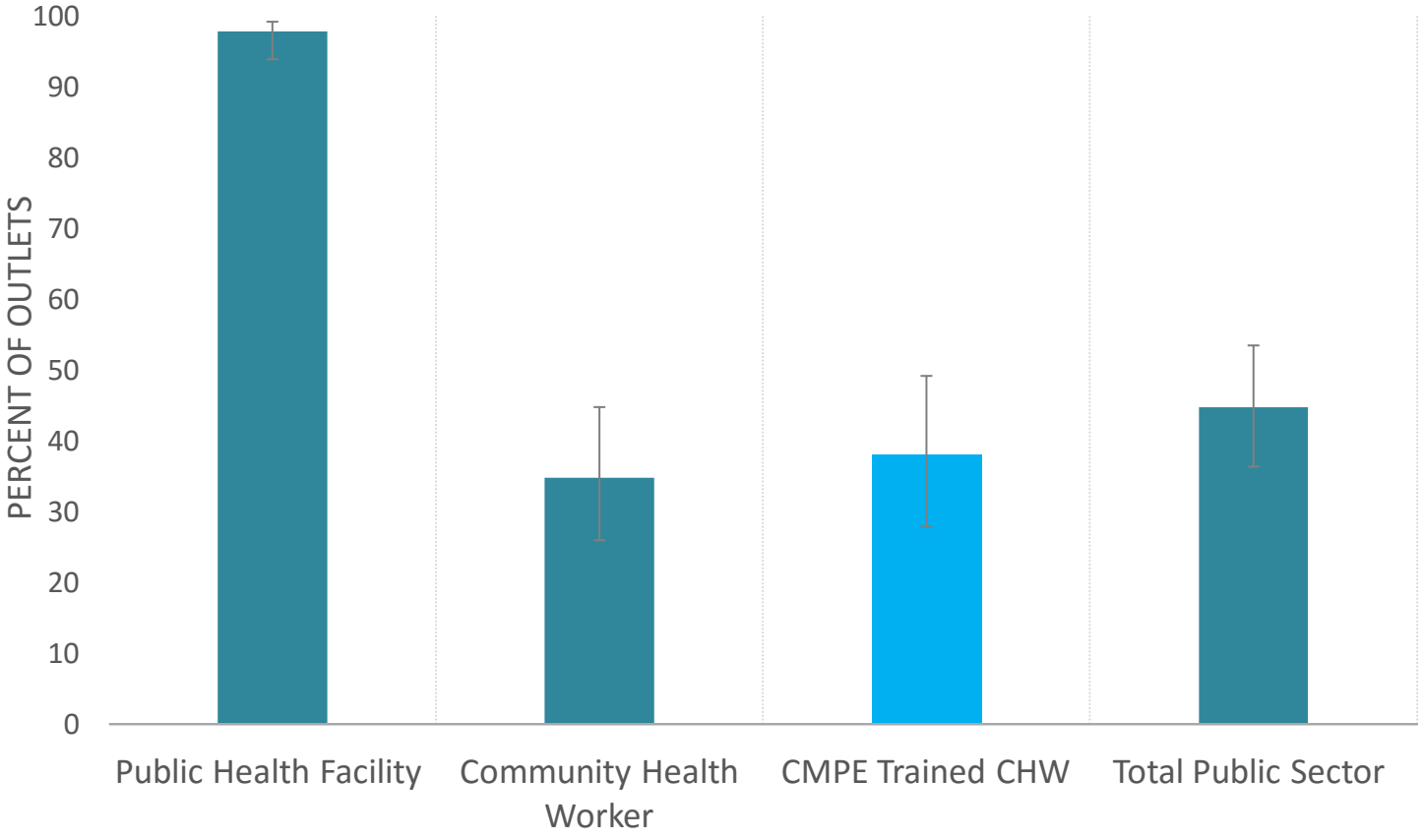
Availability of any antimalarial: public sector



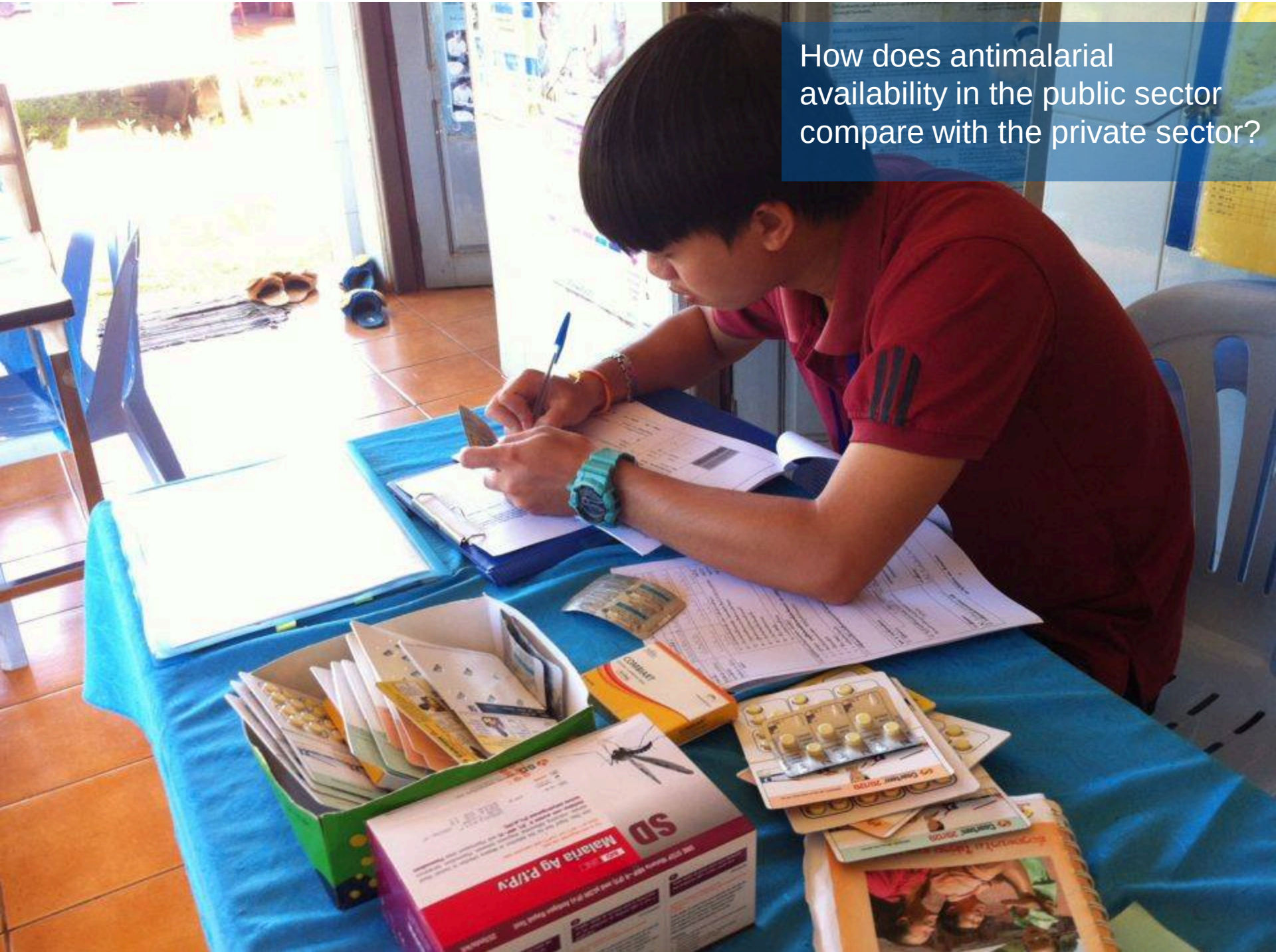
99% of public health facilities had antimalarials in stock on the day of the survey

N=414/465 CMPE trained

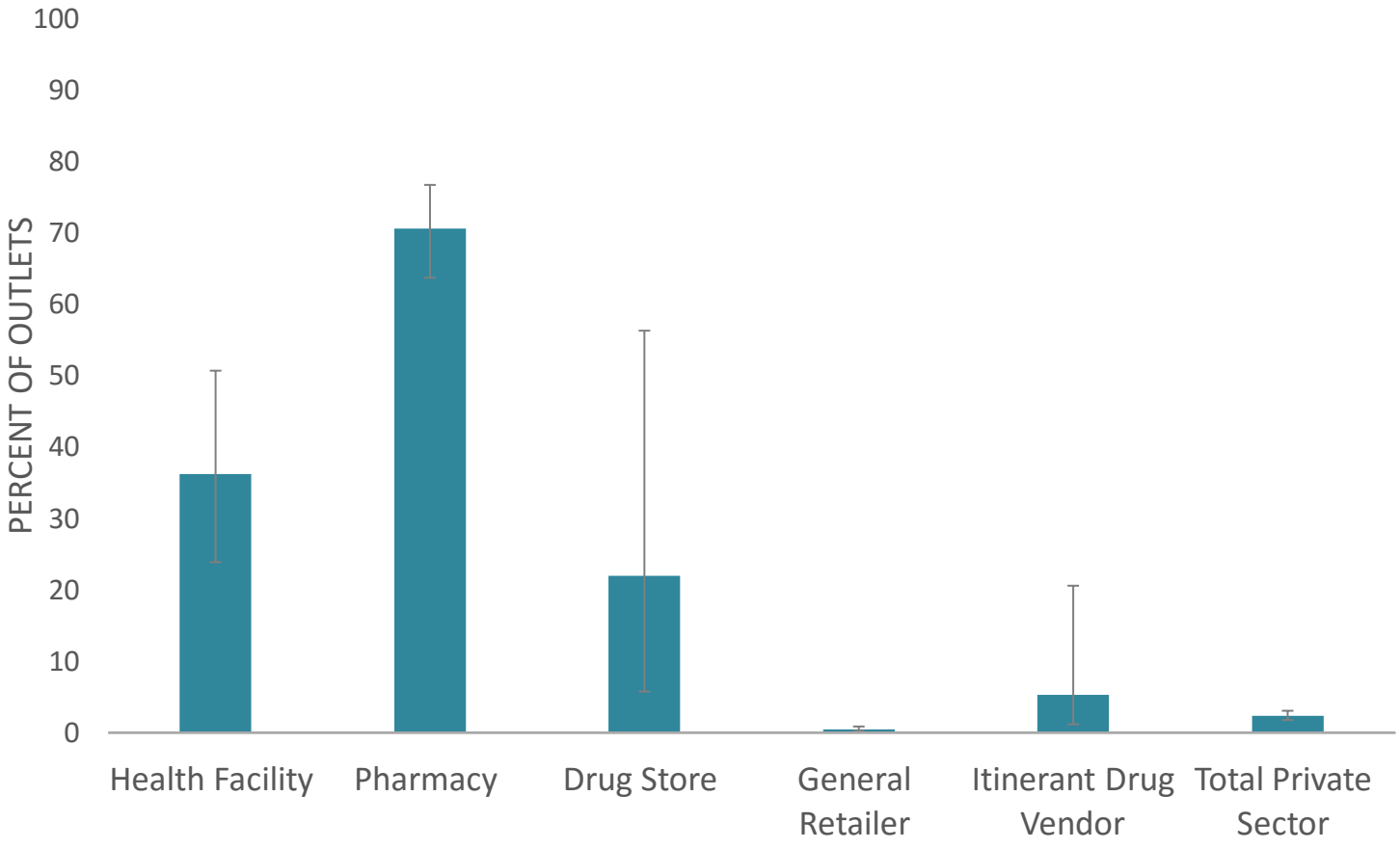
Availability of any antimalarial: public sector



5.2% stocked in the last 3 months but not on the day of survey


How does antimalarial availability in the public sector compare with the private sector?
SD
Malaria Ag P.f/P.v

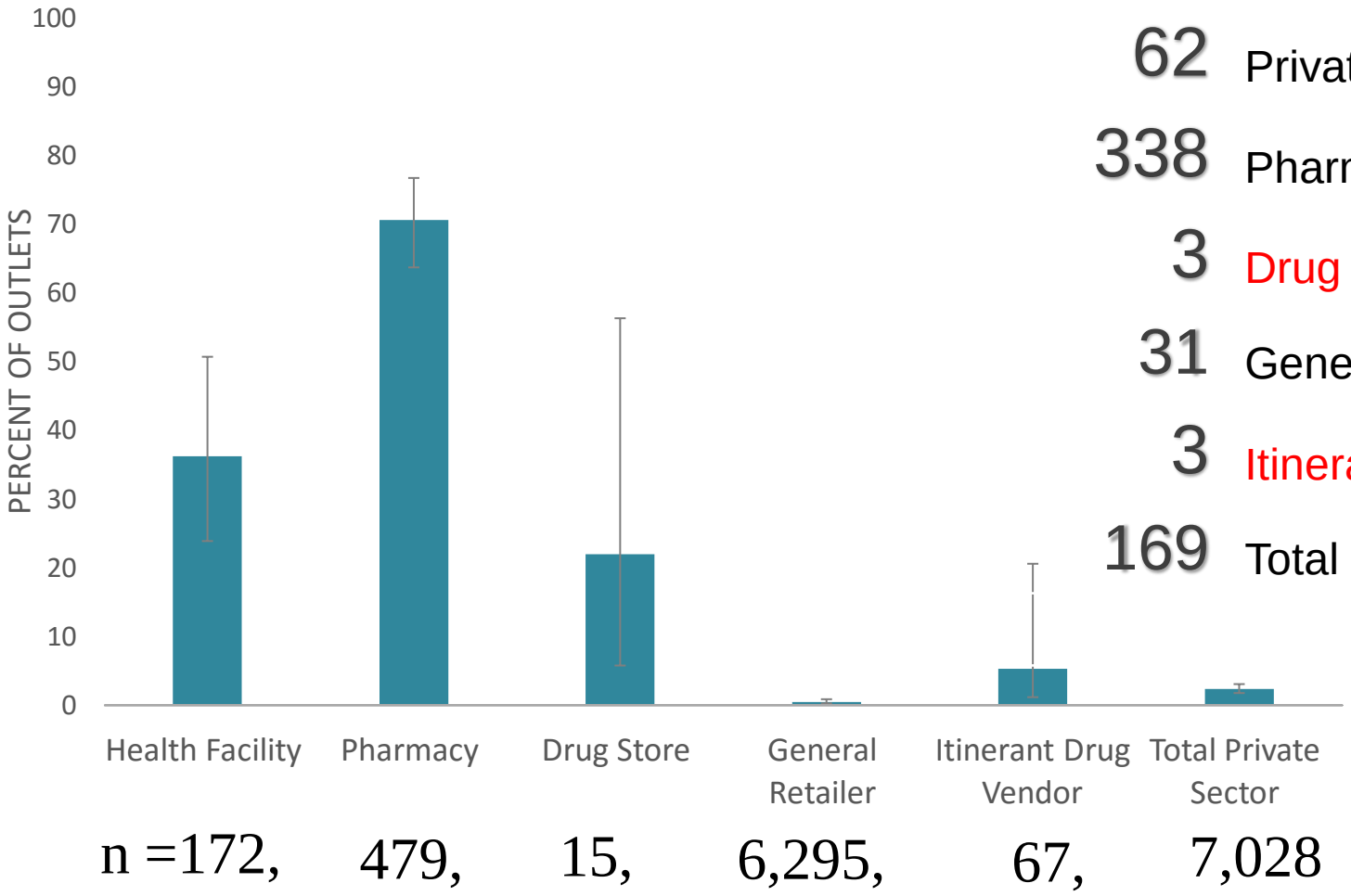
Availability of any antimalarial: private sector



Private-sector availability is lower than public sector

Pharmacies had the highest stock of antimalarials, at 71%

Availability of any antimalarial: private sector



62 Private for-profit facilities

338 Pharmacies

3 Drug Stores

31 General Retailers

3 Itinerant Drug Vendors

169 Total Private Sector

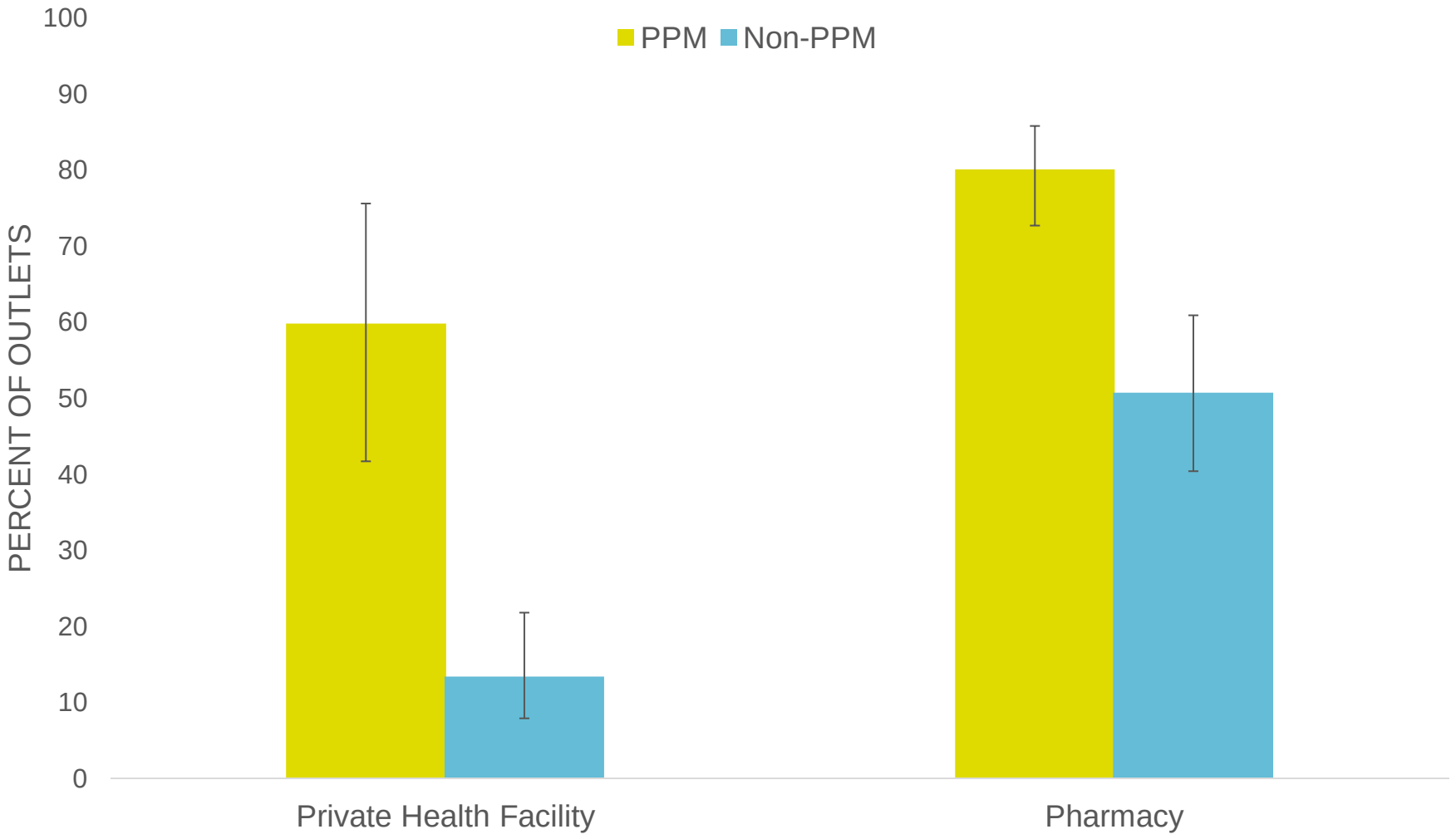
Comparison of PPM & non-PPM Private Health Facilities & Pharmacies



Public-private Mix (PPM) Program Overview

- Launched in 2008 to increase access to malaria diagnosis and treatment and remove poor-quality antimalarials from the private sector.
- Under the program, AL and malaria RDTs are distributed to PPM-registered private facilities and pharmacies.
- Of the 41 districts included in the 2015 outlet survey, 25 districts were part of the PPM program.

Outlets with at least one antimalarial in stock in 2015



Antimalarial market composition

Among all outlets with at least one AM in stock

Antimalarial market share composition in 2015

N=402

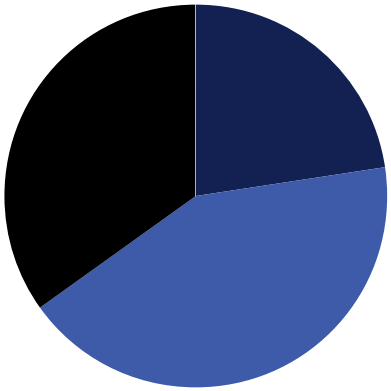
outlets with antimalarials



Among all outlets with at least one AM in stock

Antimalarial market share composition in 2015

N=402



65% public sector market composition

Public Health Facility

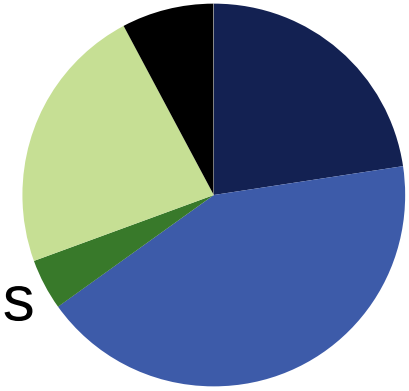
Community Health Worker

Among all outlets with at least one AM in stock

Antimalarial market share composition in 2015

N=402

27% private facilities & pharmacies



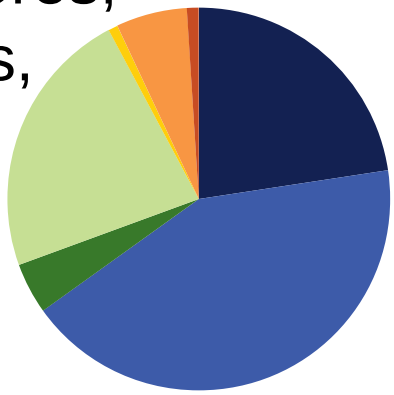
Public Health Facility
Community Health Worker
Health Facility
Pharmacy

Among all outlets with at least one AM in stock

Antimalarial market share composition in 2015

8% Drug stores, general retailers, & itinerant drug vendors

N=402



- Public Health Facility
- Community Health Worker
- Health Facility
- Pharmacy
- Drug Store
- General Retailer
- Itinerant Drug Vendor

5 insights

availability and market composition in Lao PDR

1. **Public health facilities' availability was high, with an almost universal availability of antimalarials.**

2. **1 in 3 CHWs had antimalarials available, and CHWs are meant to access rural, remote populations.**

3. **In the private sector, 70% of pharmacies and 40% of private for-profit facilities had antimalarials available.**

4. **Private-sector availability is much lower in drug stores and negligible among itinerant drug vendors. General retailers also rarely stock antimalarials.**

5. **Market composition: Most of the antimalarial service delivery points include public health facilities and CHWs, followed by private for-profit facilities.**

Among outlets with an antimalarial, what types of antimalarials were found in 2015?

Is the first-line ACT available?

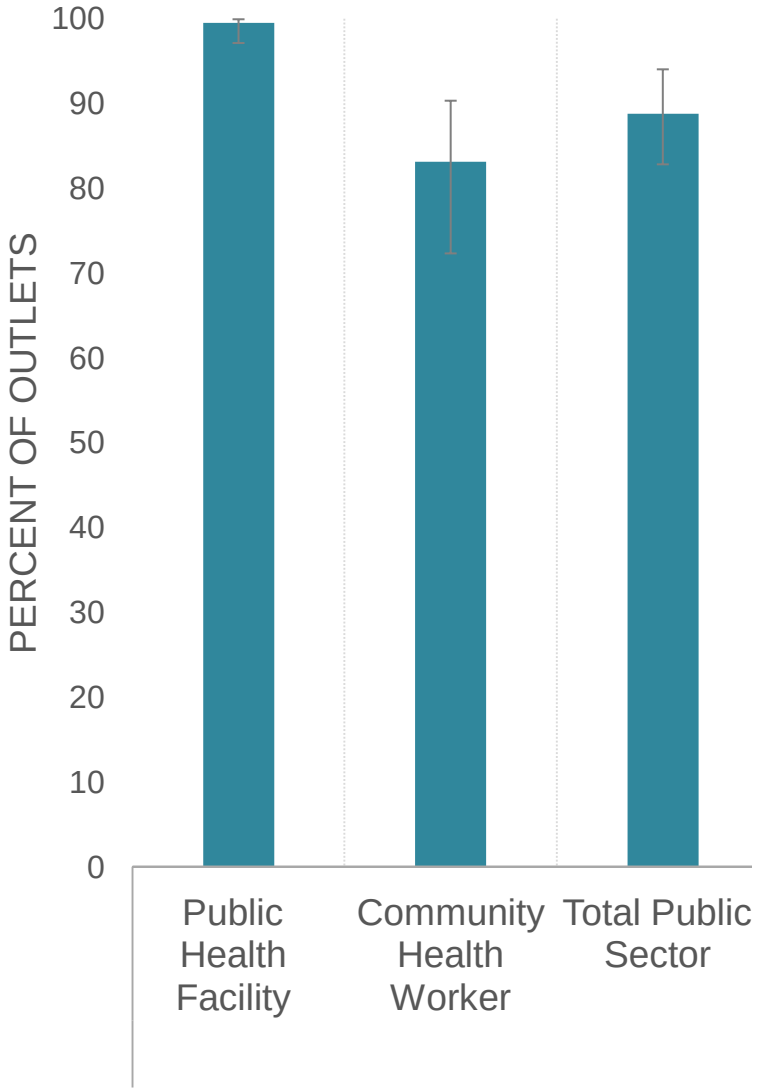


First-line ACT (AL)

2005

Among all outlets with at least one AM in stock

Availability of any national first-line ACT in the public sector, 2015

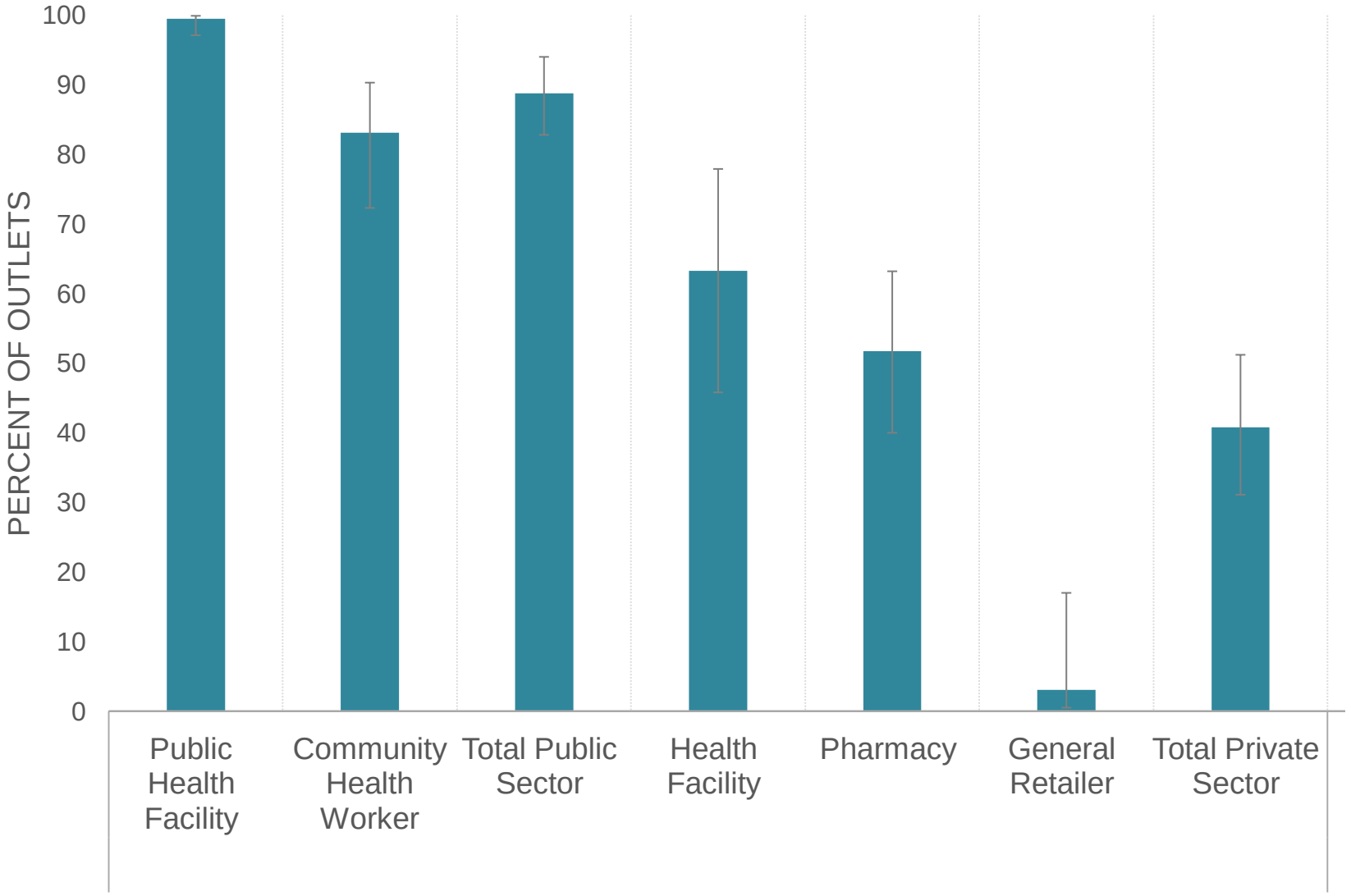


99.5% of antimalarial-stocking public health facilities and

83% of CHWs have ACT

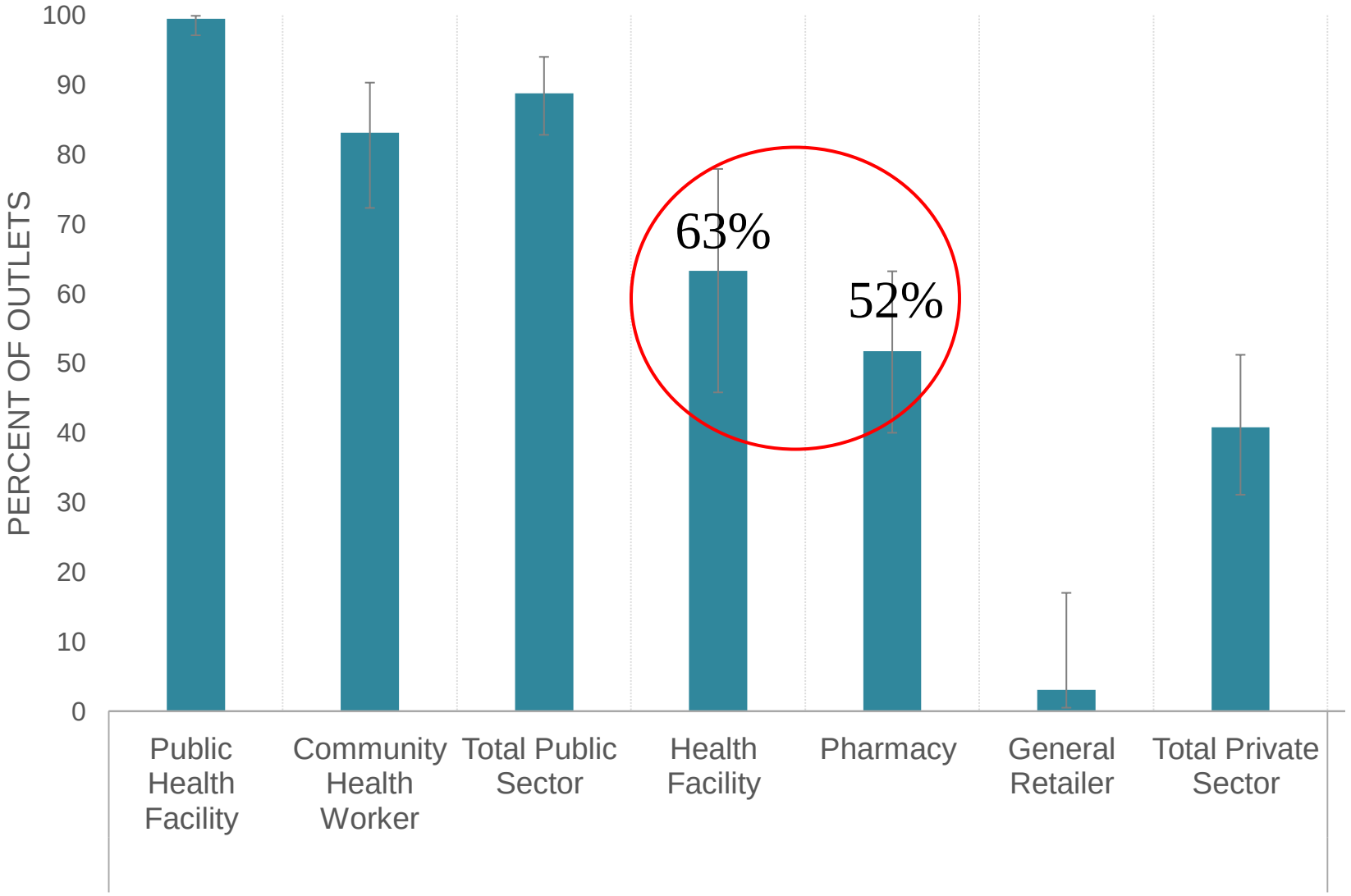
Among all outlets with at least one AM in stock

Availability of any national first-line ACT in the public & private sector, 2015

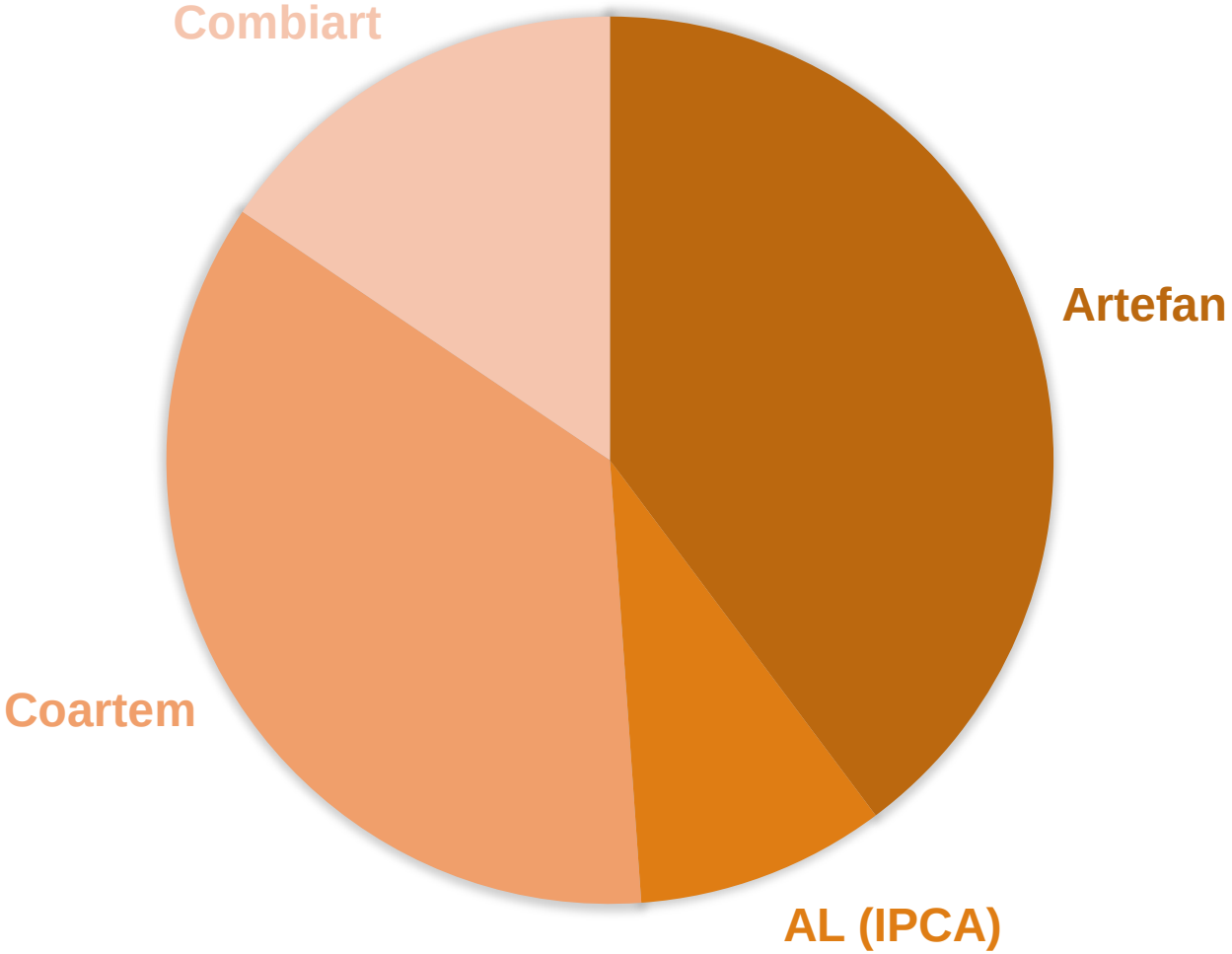


Among all outlets with at least one AM in stock

Availability of any national first-line ACT in the public & private sector, 2015



Types of AL Products Audited, 2015



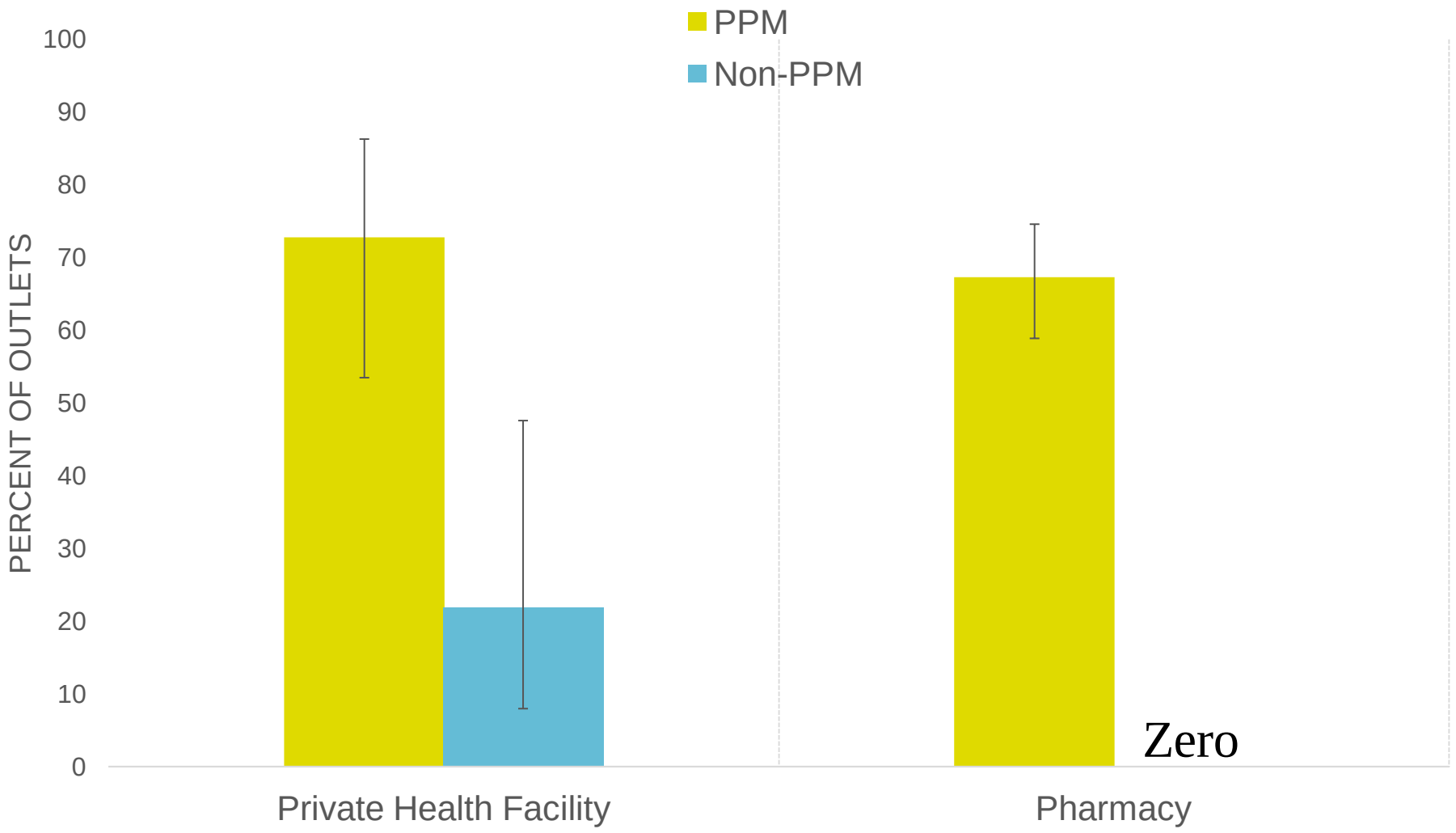
N=1242

Comparison of PPM & non-PPM Private Health Facilities & Pharmacies



Among all outlets with at least one AM in stock

Availability of national first-line ACT across outlets located in PPM and non-PPM areas, 2015



What is the availability of oral artemisinin monotherapy?



ORAL AMT BAN

2007

1 box of oral AMT was found in the entire study, and it was found in a private for-profit facility.

GMP - WHO

Box of 10 blisters x 12 tablets

℞ Prescription only

Artesunat

Artesunat.....50 mg

ANTIMALARIAL AGENT

PHARMACEUTICAL FACTORY N°120 - ARMEPHACO JOINT STOCK COMPANY
118 Vu Xuan Thieu - Long Bien - Ha Noi / Tel: 04 3674 0056 - 069 575 024
Website: www.armephaco.com.vn / Email: armephaco@armephaco.com.vn

Artesunat

Artesunat ..... 50 mg

XNDP 120 - CTCP ARMEPHACO

SĐK: VD-13186-10 GMP-WHO

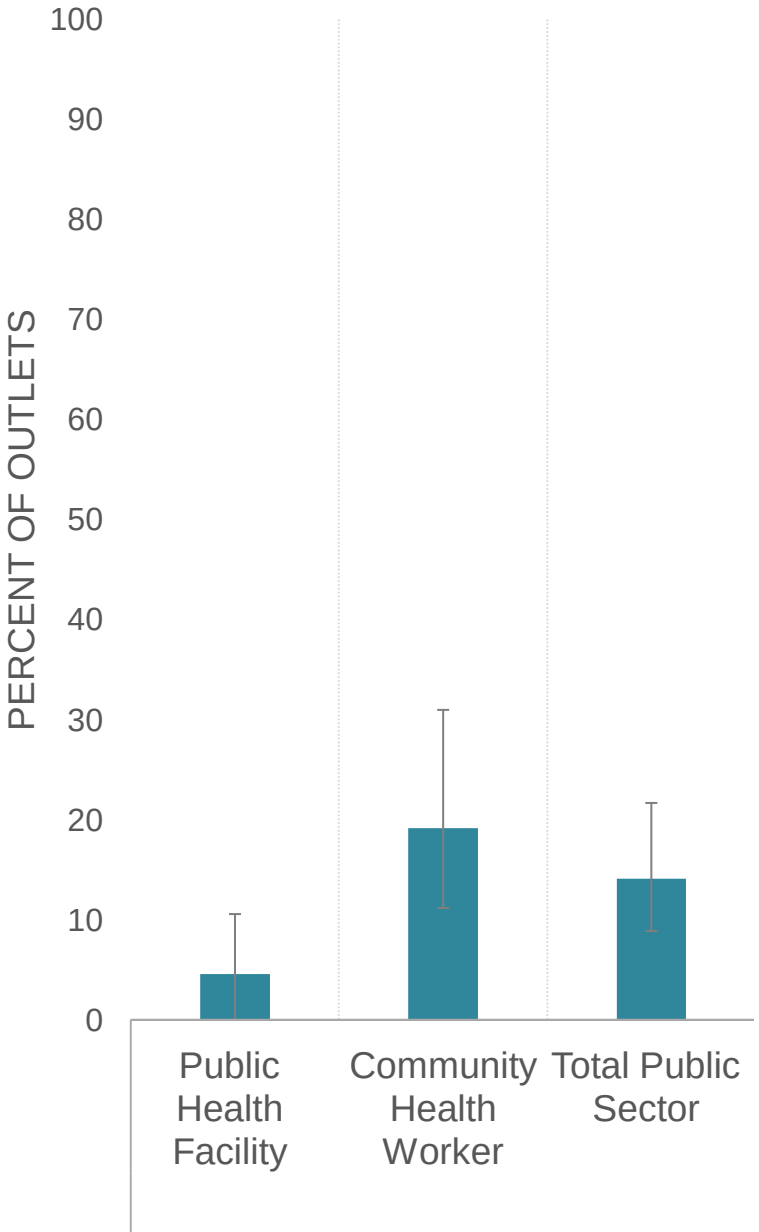
CHLOROQUINE

The government-recommended, second-line treatment for P. vivax malaria is chloroquine + primaquine.

CQ tablets are recommended in the National Treatment Guidelines for pregnant women who have uncomplicated malaria in their 1st trimester.

Among all outlets with at least one AM in stock

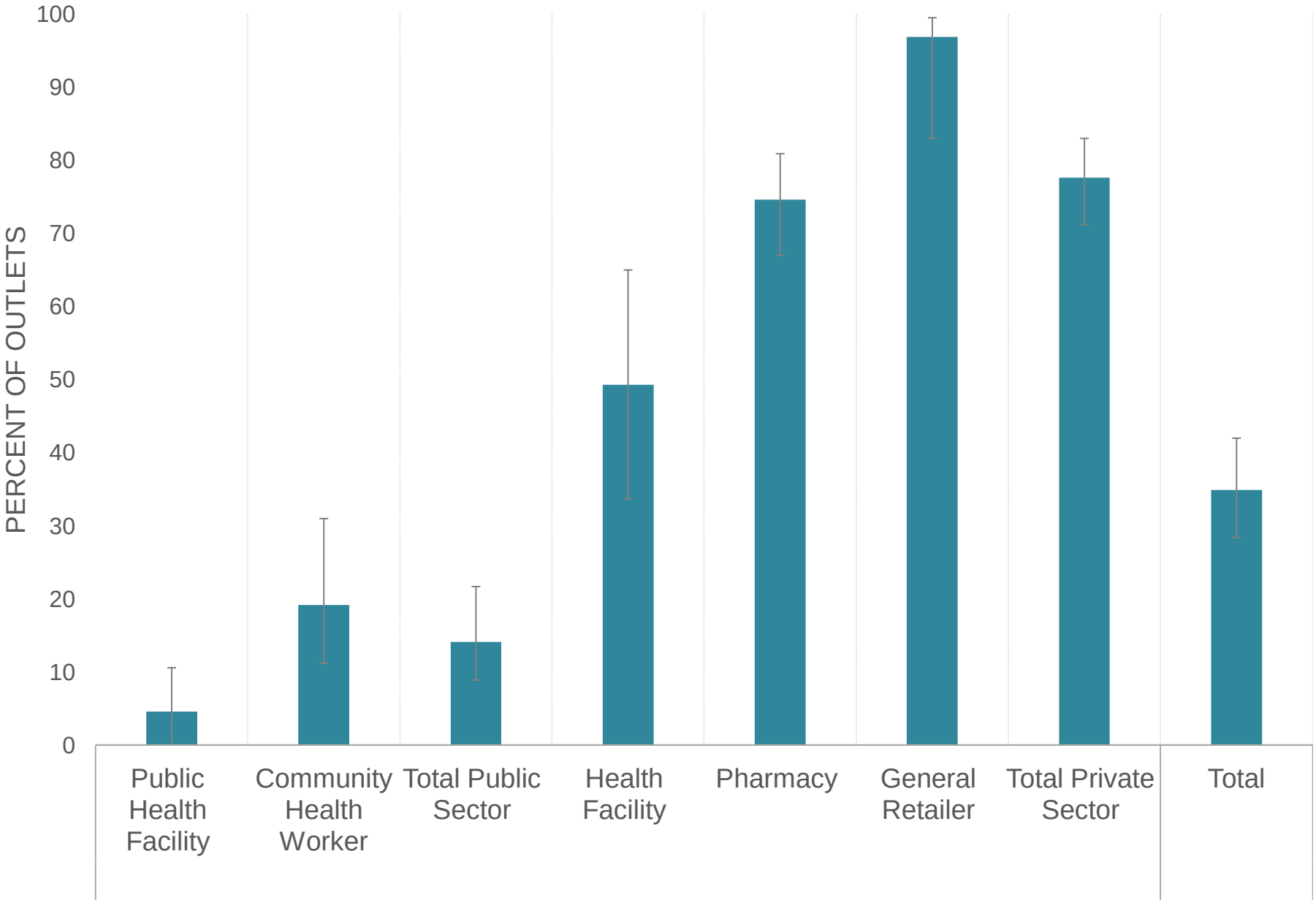
Availability of chloroquine in the public sector, 2015

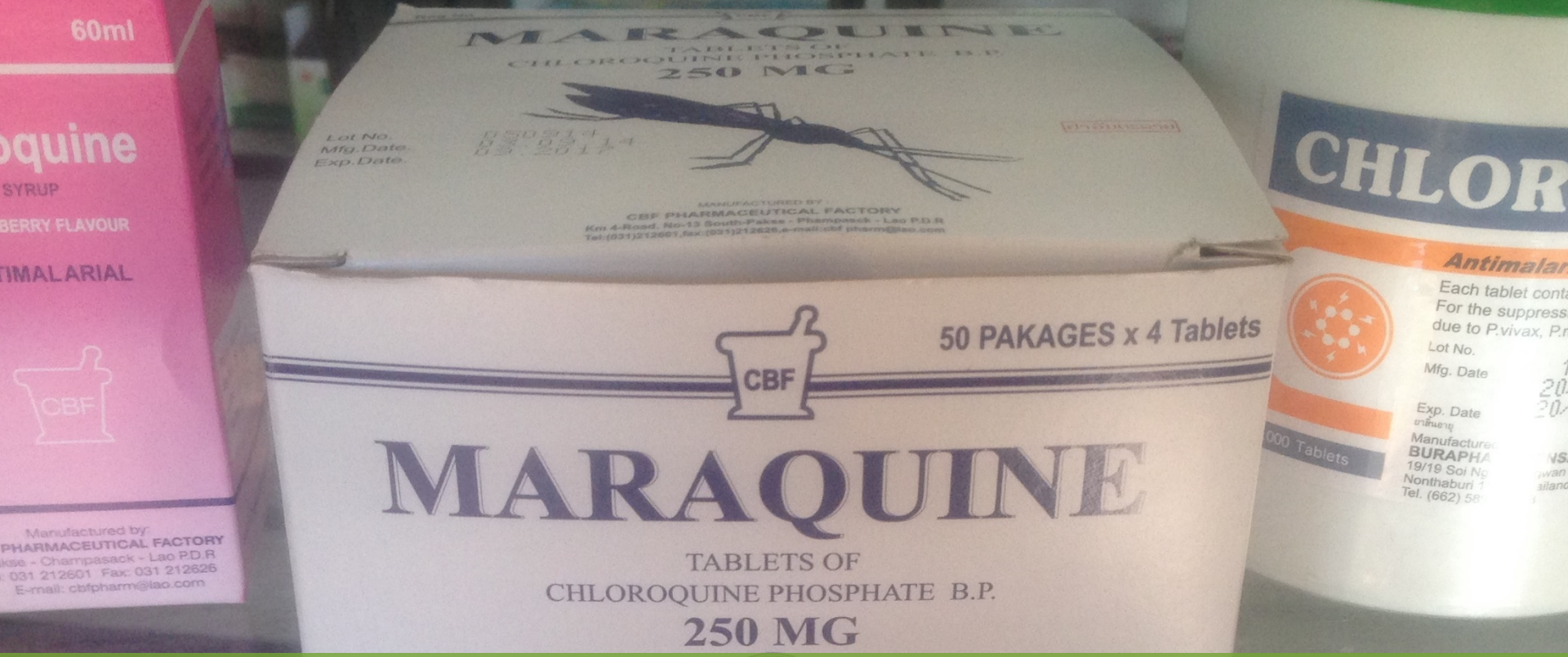


14% of antimalarial-stocking public-sector outlets have chloroquine

Among all outlets with at least one AM in stock

Availability of chloroquine across both sectors, 2015





The most common CQ audited was Maraquine
(245 of the 327 CQ products audited)

0

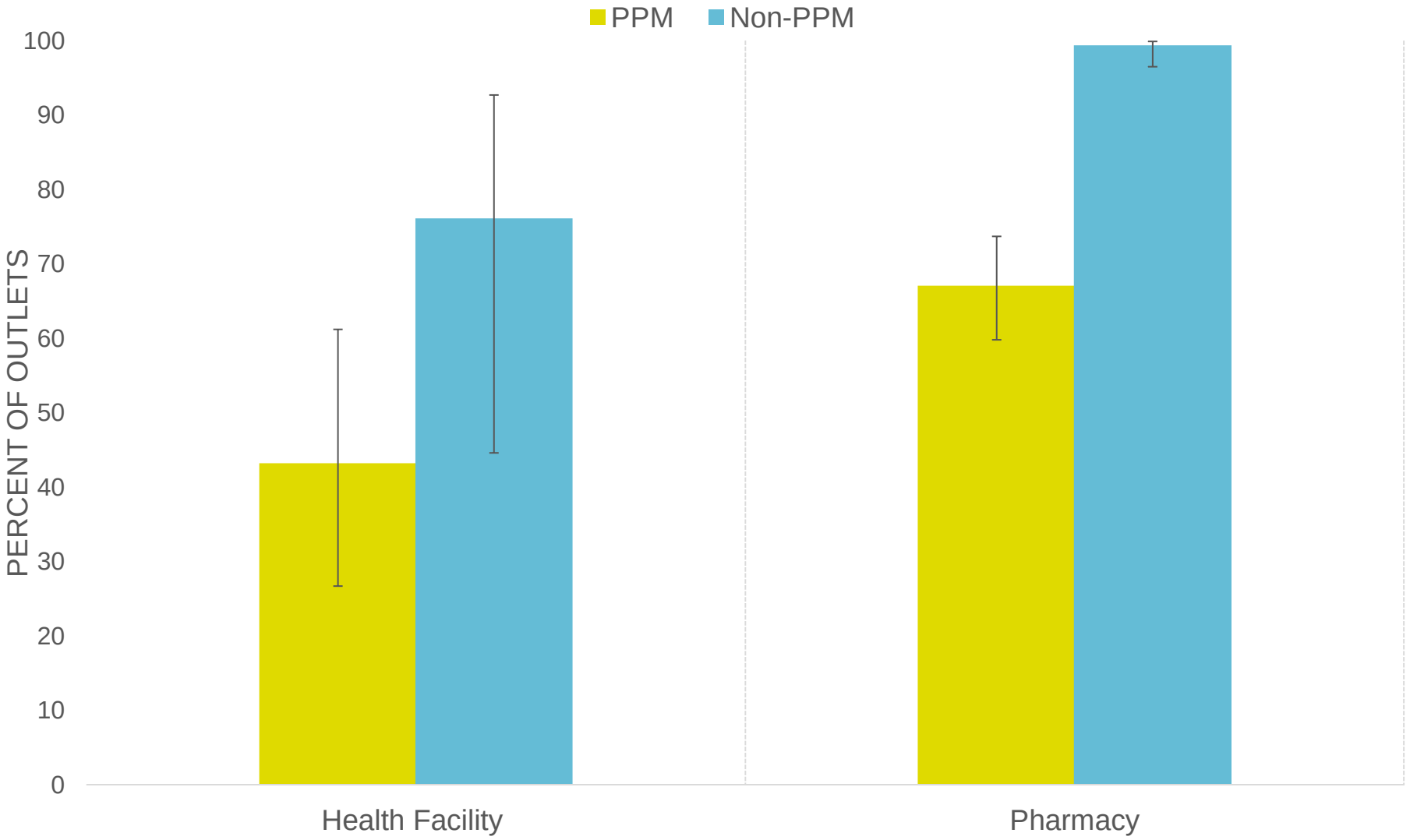
Percent of outlets were found to stock both chloroquine and primaquine.

Comparison of PPM & non-PPM Private Health Facilities & Pharmacies



Among all outlets with at least one AM in stock

Availability of chloroquine across outlets located in PPM and non-PPM areas, 2015

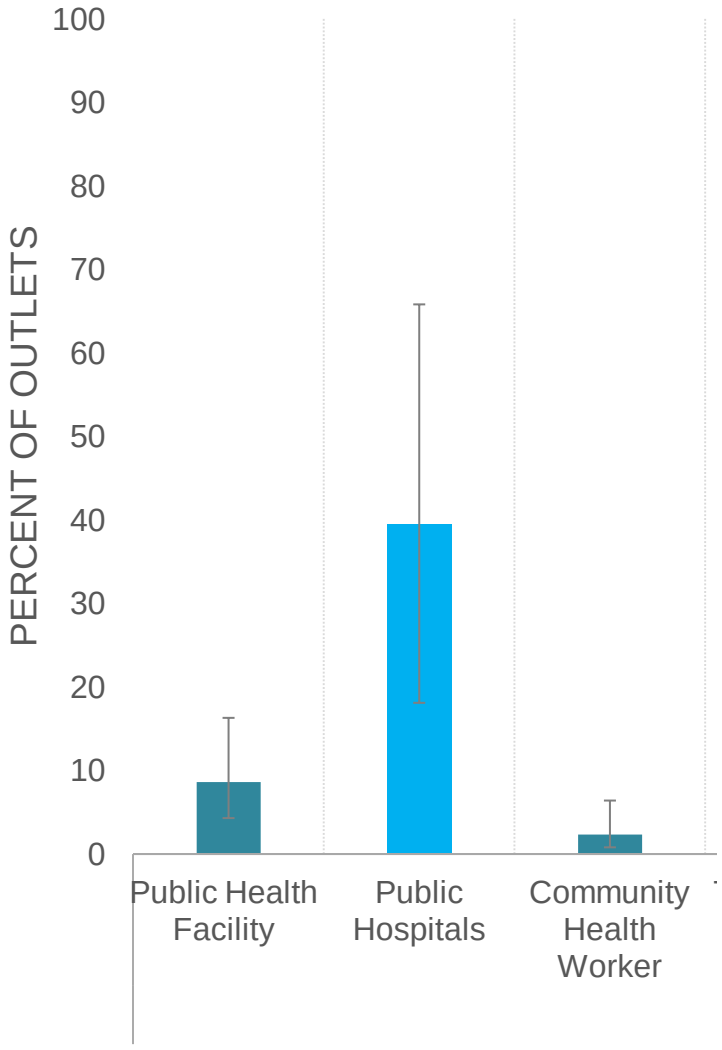




How available is treatment for severe malaria?

Among all outlets with at least one AM in stock

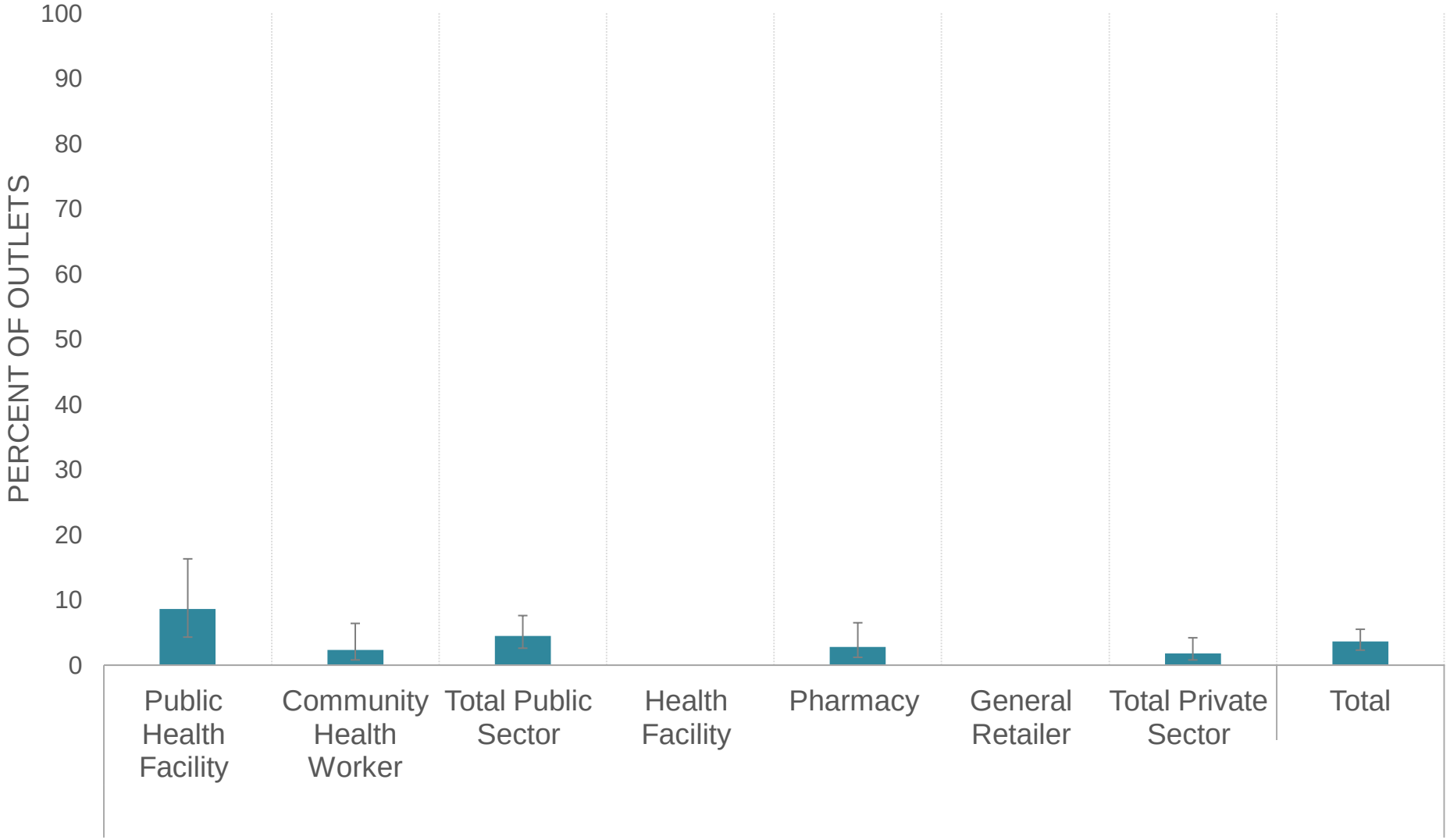
Availability of treatment for severe malaria in 2015



9 /19 of public hospitals outlets stock treatment for severe malaria

Among all outlets with at least one AM in stock

Availability of treatment for severe malaria in 2015



5 insights

availability of different classes of antimalarials in Lao PDR

1. **First-line treatment availability is high among antimalarial-stocking public health facilities and CHWs, and moderate among pharmacies and private for-profit facilities.**

2. **Oral AMT is not available: only 1 oral AMT product was found in a private for-profit facility.**

3. **Chloroquine is still widely available in the private sector. No outlets stock CQ and primaquine.**

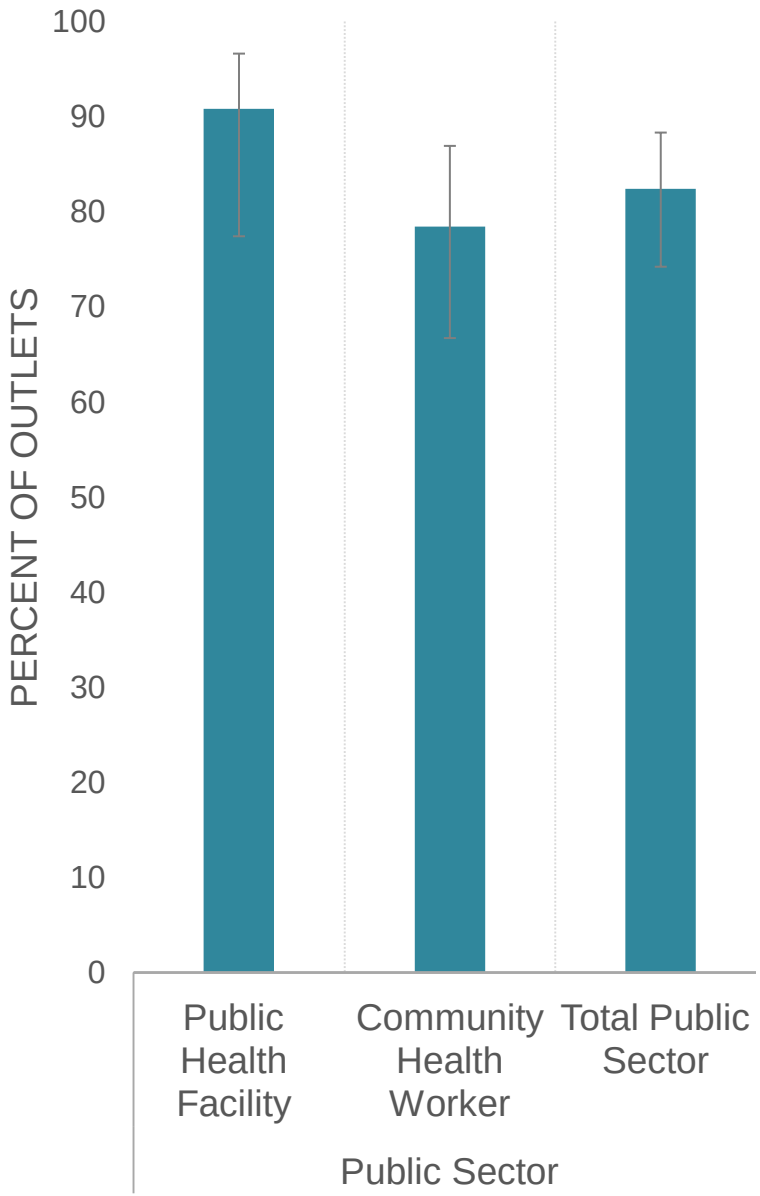
4. **The public sector rarely has chloroquine in stock.**

5. **Availability of the first-line treatment was higher in outlets located in PPM districts; conversely availability of CQ was higher in non-PMM areas.**

Is malaria blood testing available among outlets that have an antimalarial in stock?

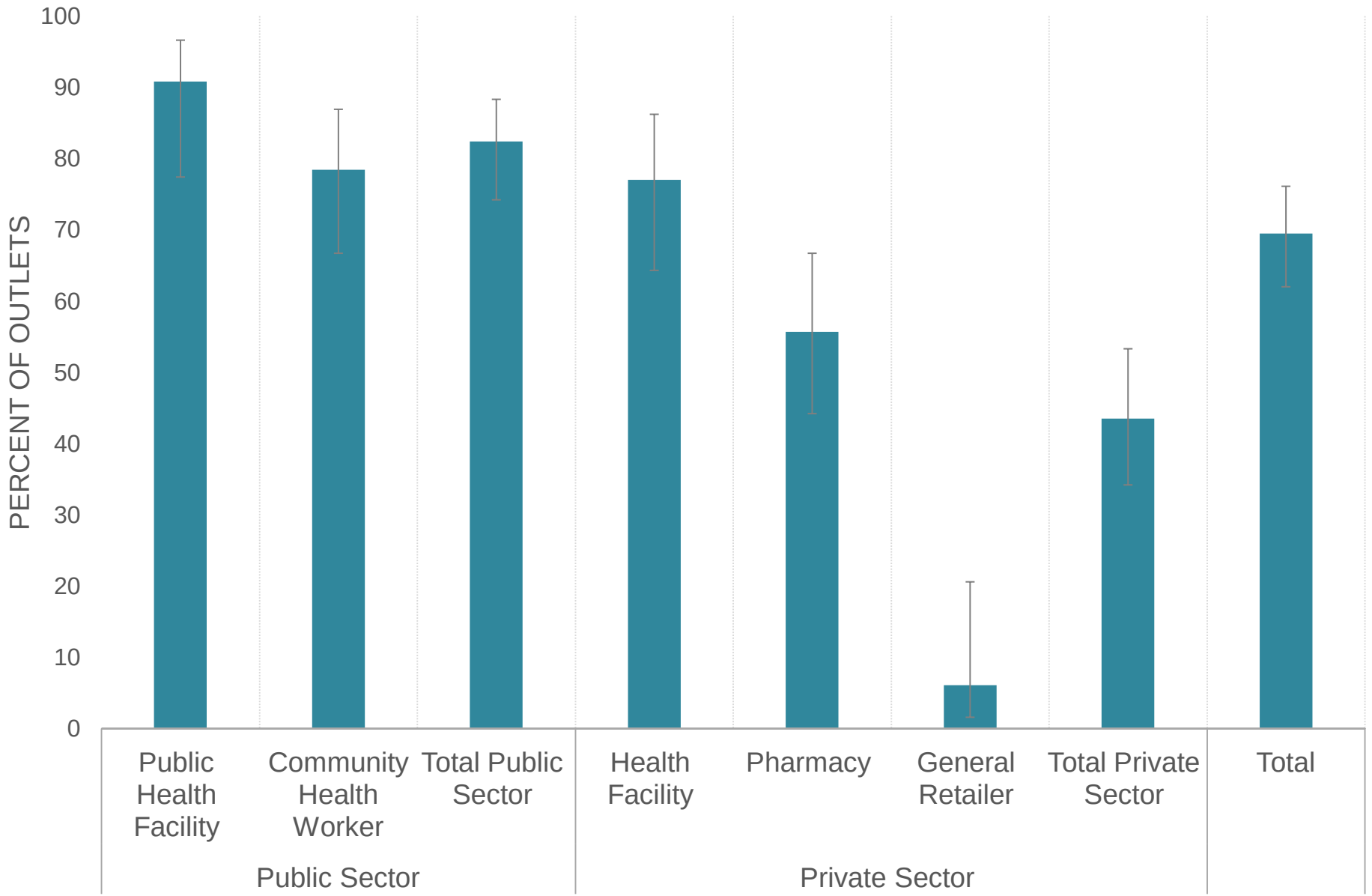
Among all outlets with at least one AM in stock or in the past 3 months

Availability of malaria blood testing in 2015



Among all outlets with at least one AM in stock or in the past 3 months

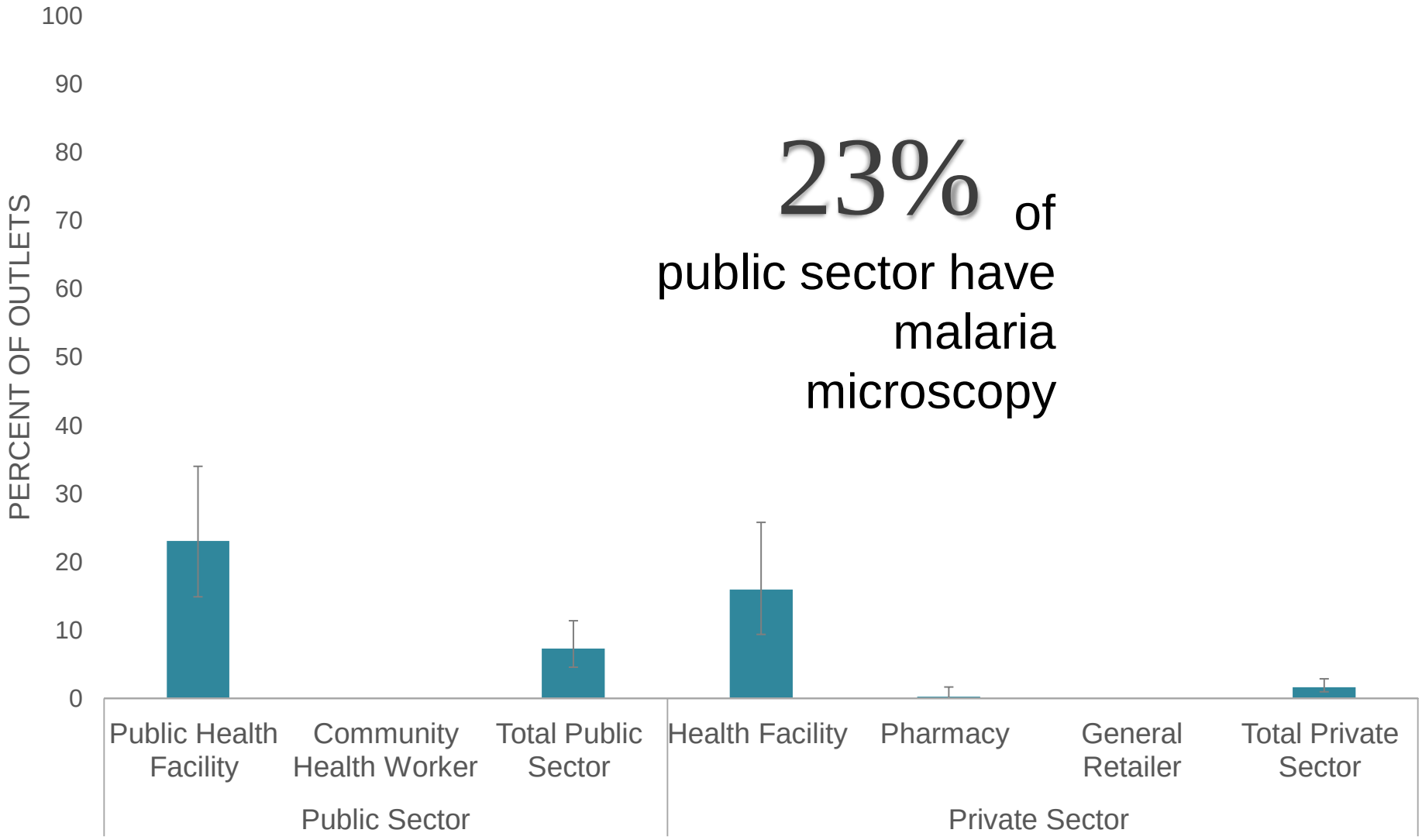
Availability of malaria blood testing in 2015





Among all outlets with at least one AM in stock or in the past 3 months

Availability of malaria microscopy in 2015

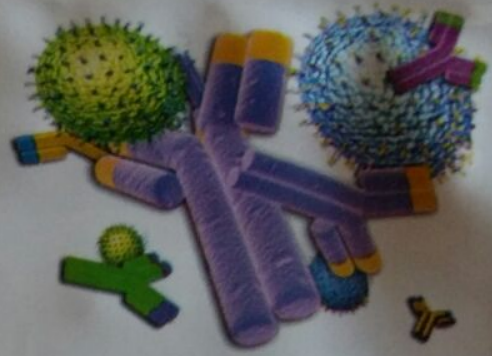


CTK

OnSite Rapid Test

Σ 1

CE



2°C 30°C

IVD

For *in vitro* diagnostic use only
Store at 2-30°C, sealed

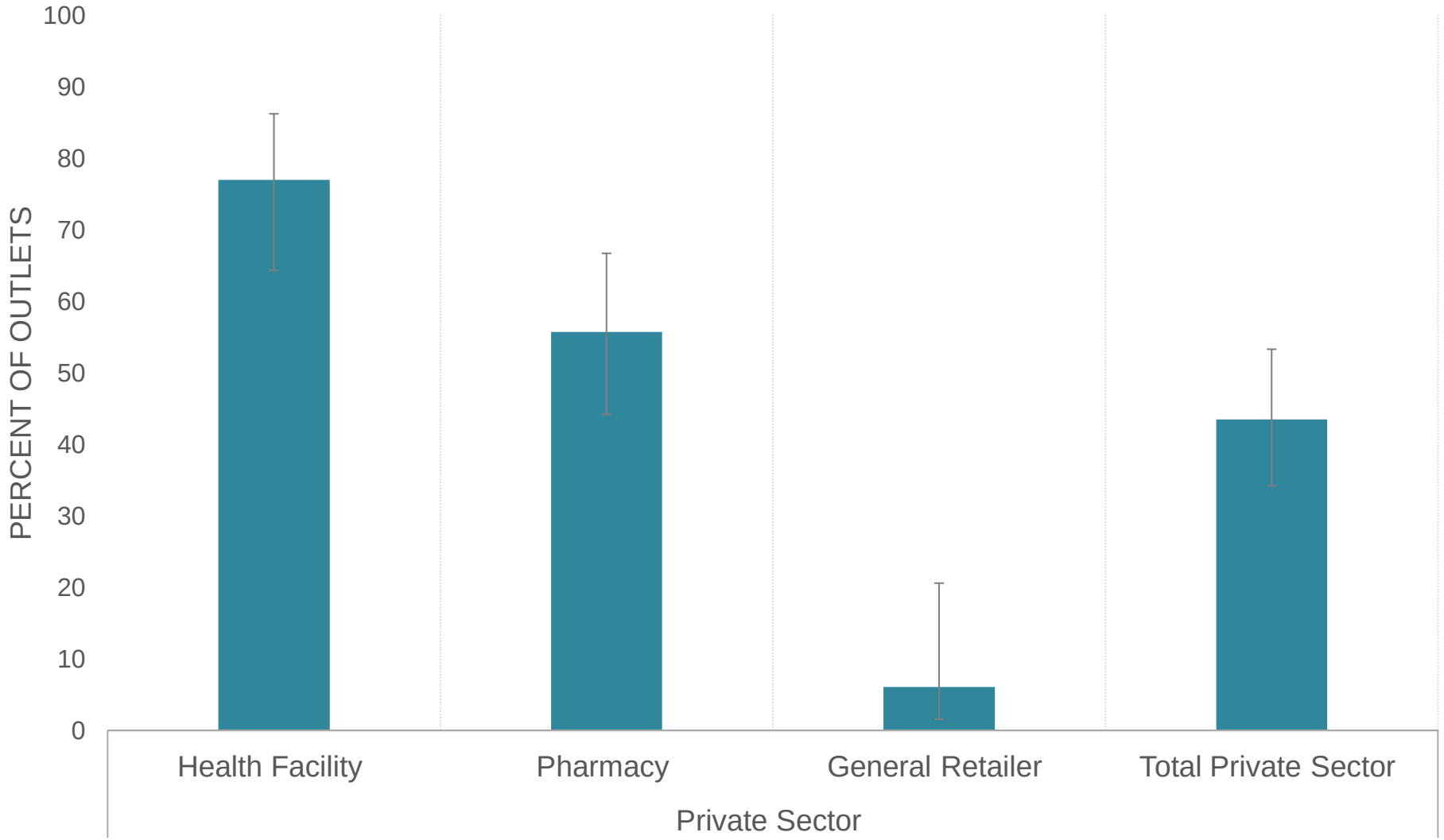
CTK Biotech, Inc
10110 Mesa Rim Road
San Diego, CA 92121, USA
E-mail: info@ctkbiotech.com

EC REP MDSS GmbH
Schiffgraben 41
30175 Hannover, Germany

Lateral Flow Rapid Test
1 cassette

Among all outlets with at least one AM in stock or in the past 3 months

Availability of malaria RDTs in 2015

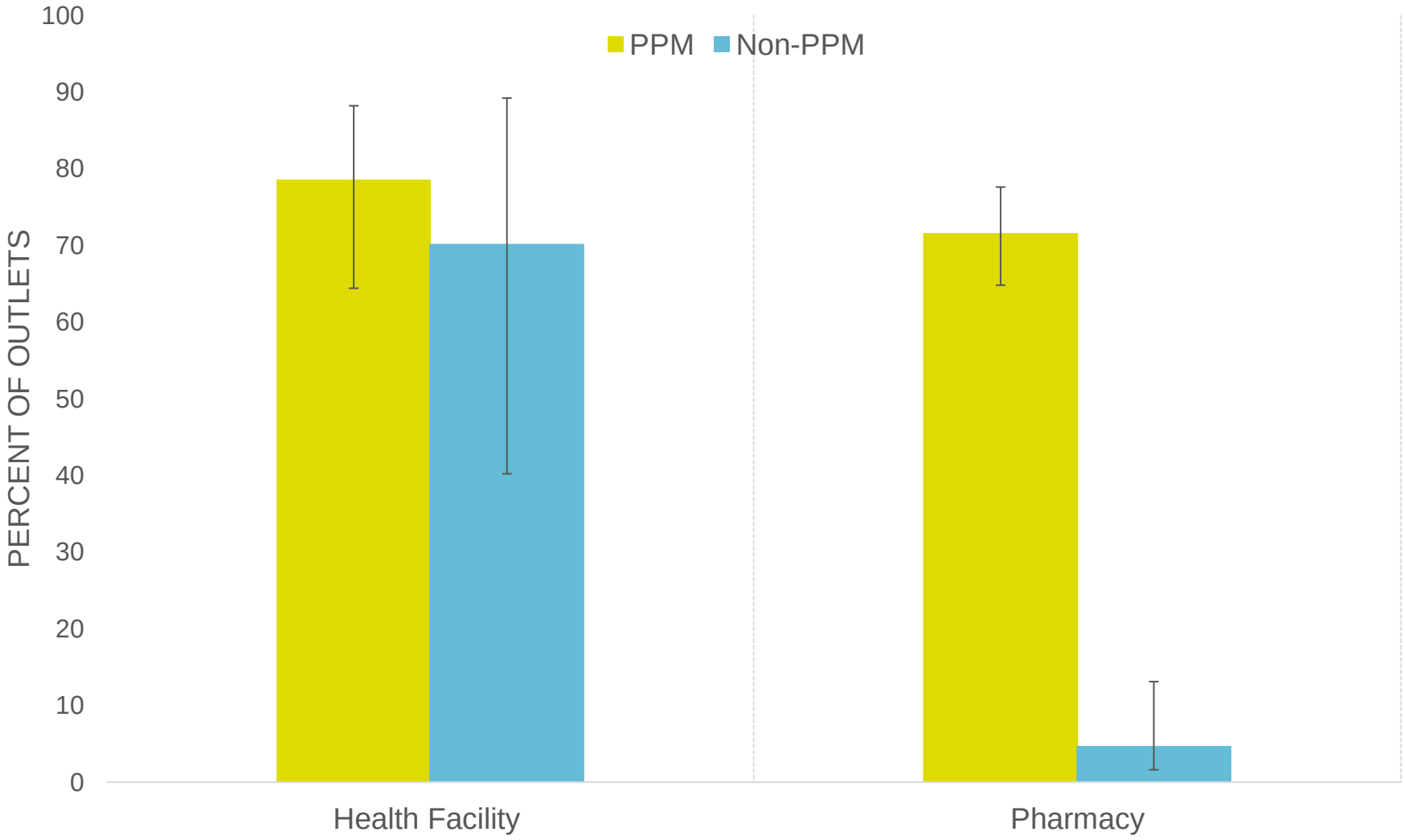


Comparison of PPM & non-PPM Private Health Facilities & Pharmacies



Among all outlets with at least one AM in stock or in the past 3 months

Availability of across outlets located in PPM and non-PPM areas, 2015



5 insights

malaria blood testing in Lao PDR

1. **Malaria testing availability is high in the public sector.**

2. **77% of private for-profit health facilities and 56% of pharmacies have malaria blood tests in stock.**

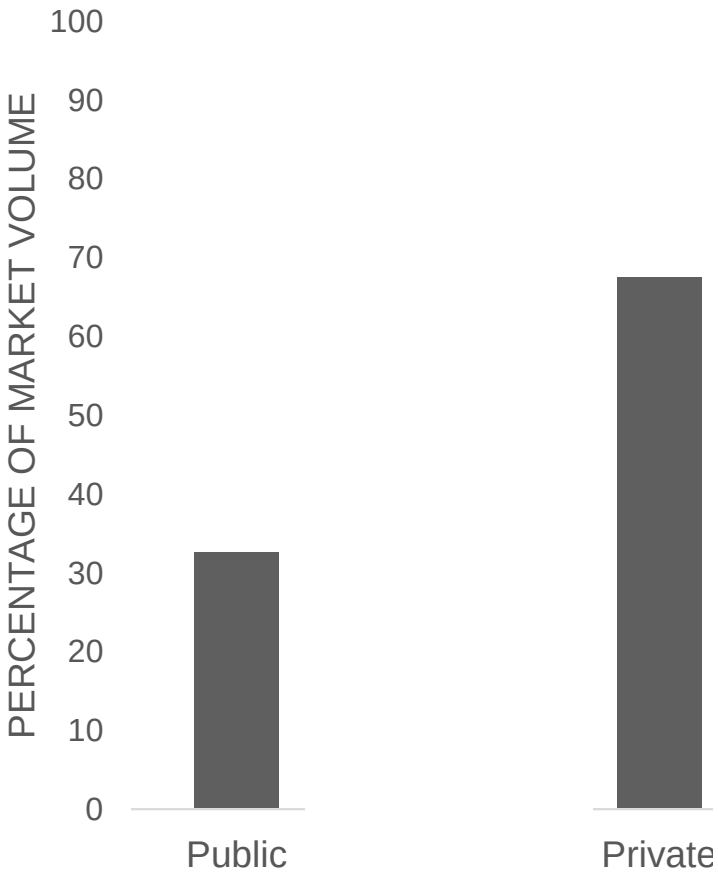
3. **Antimalarial stocking general retailers rarely have tests in stock.**

4. **Most outlets with malaria testing in stock test have RDTs.**

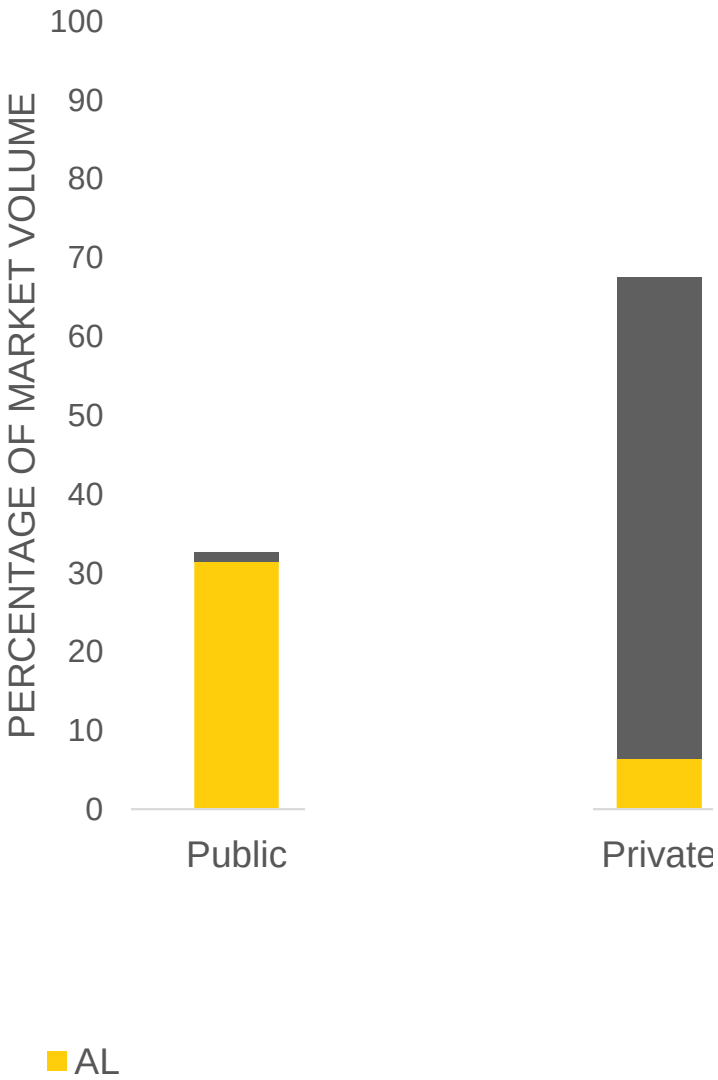
5. **Availability of testing was higher in PPM areas than non-PPM areas**

What is the antimalarial market share between the public and private sectors?

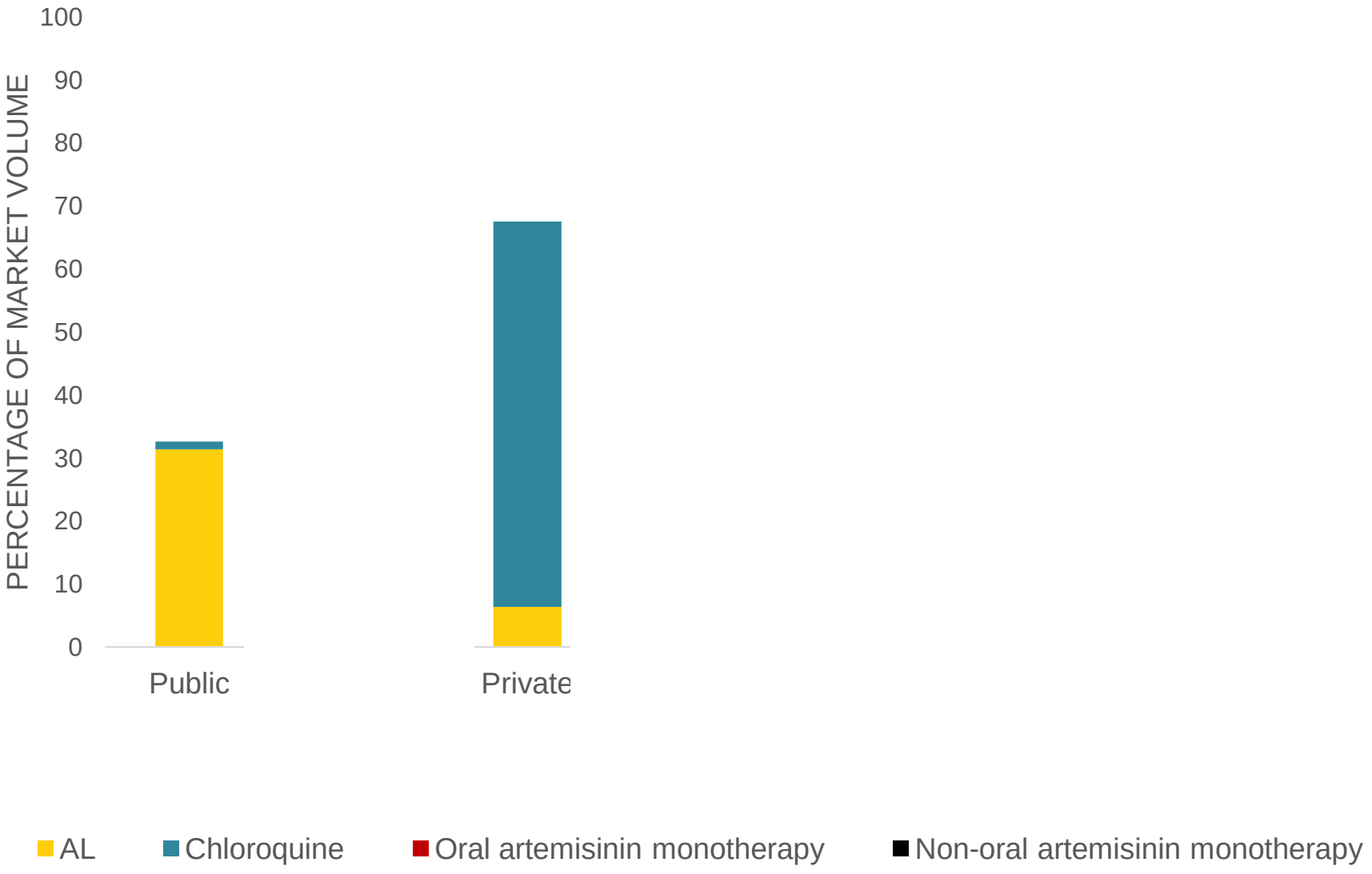
Antimalarial Market Share in 2015



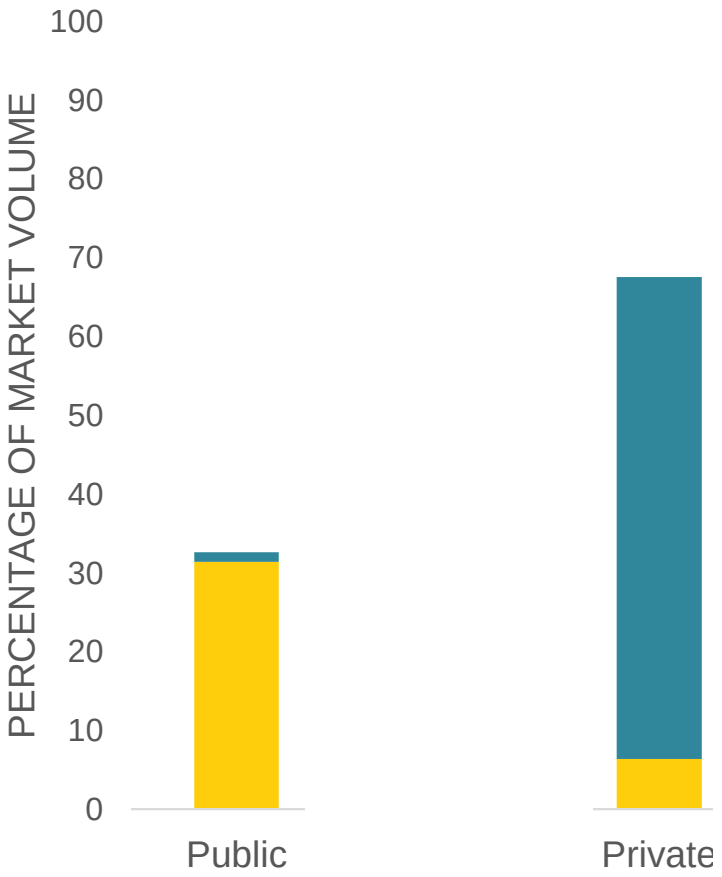
Antimalarial Market Share in 2015



Antimalarial Market Share in 2015



Antimalarial Market Share in 2015



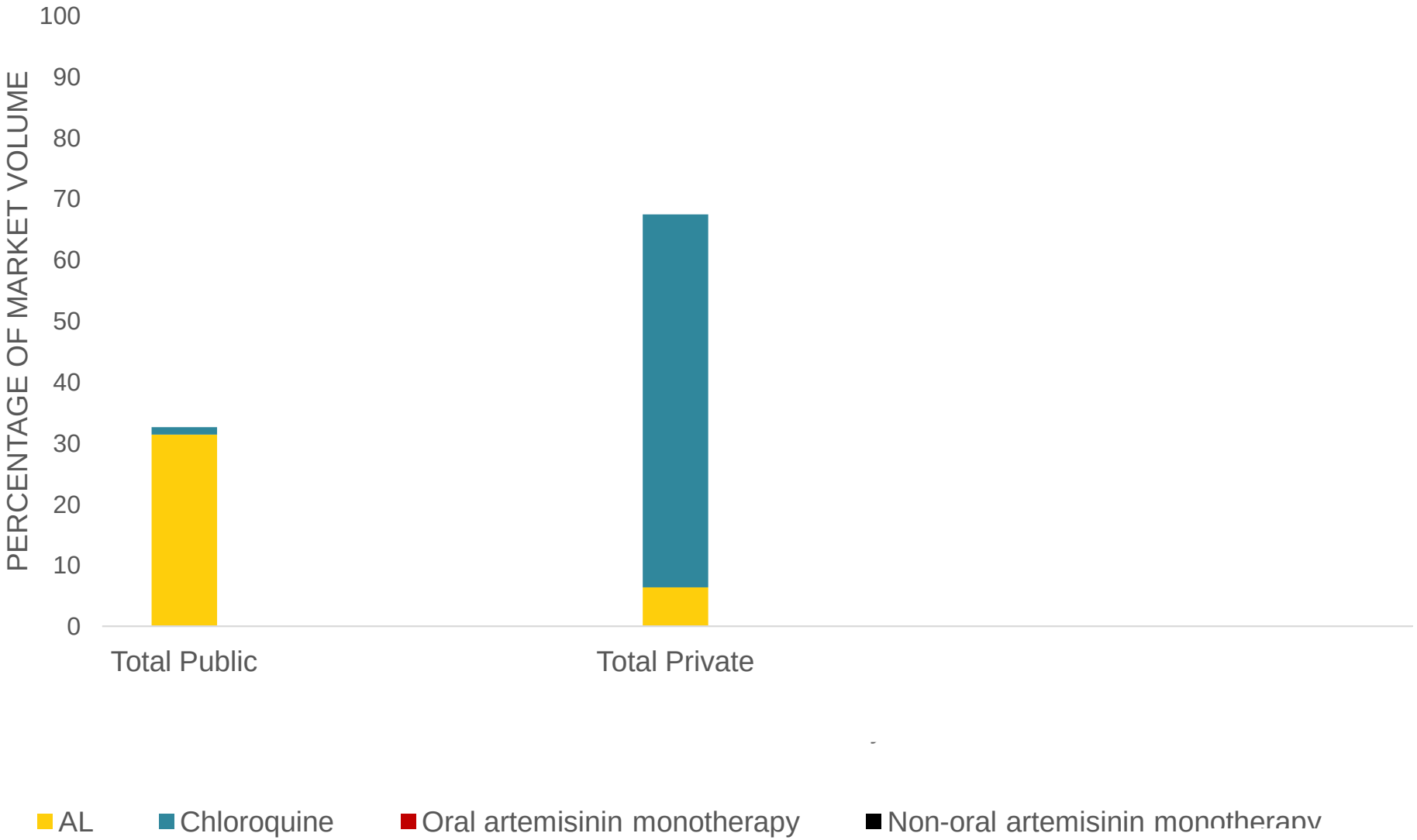
40%

of the market share is comprised of ACT, but 60% of the distribution is from chloroquine. The public sector performs very well, almost exclusively distributing ACT. Most chloroquine is distributed through the private sector.

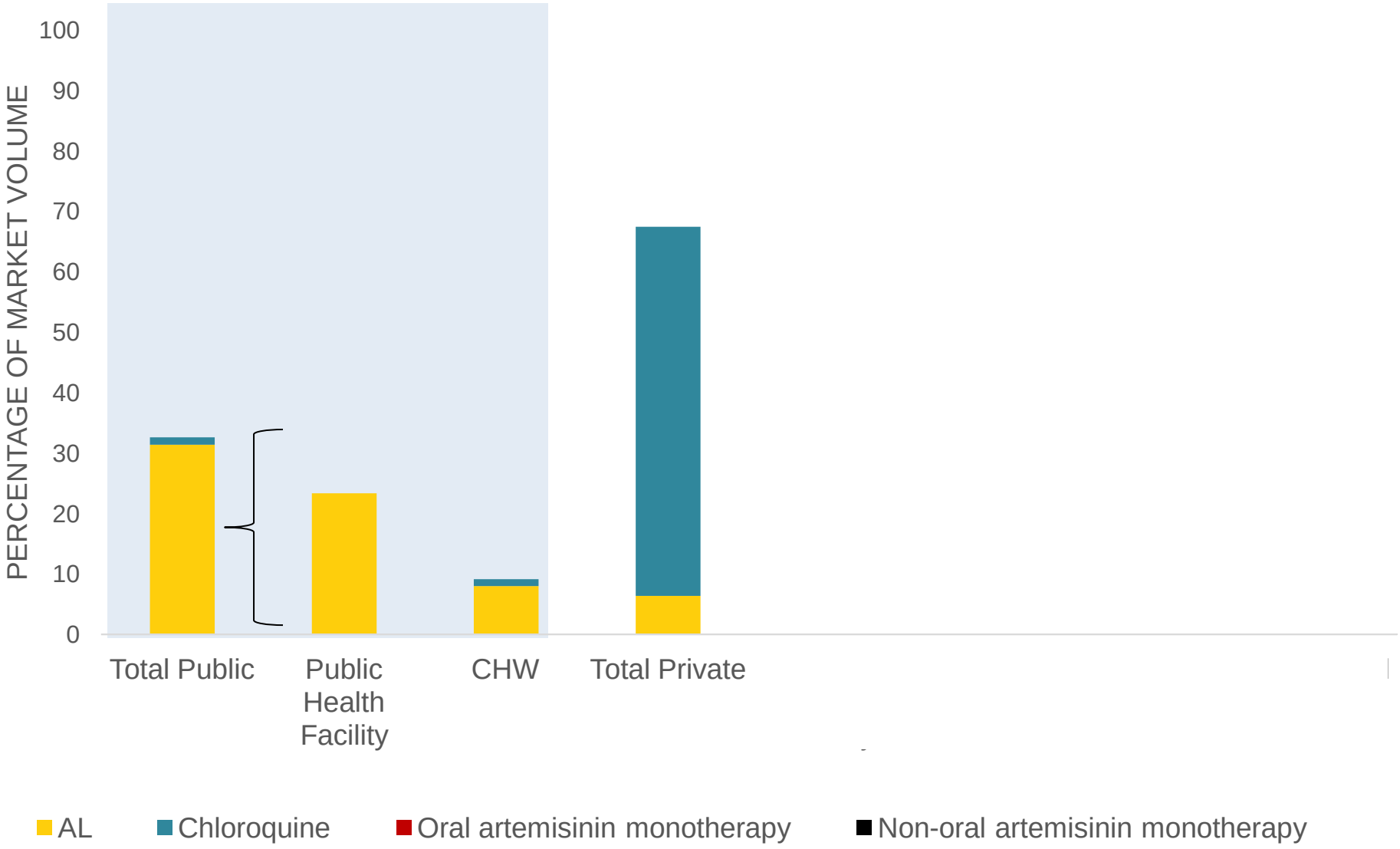
AL | Chloroquine | Oral artemisinin monotherapy | Non-oral artemisinin monotherapy

What is the market share according to different outlet types?

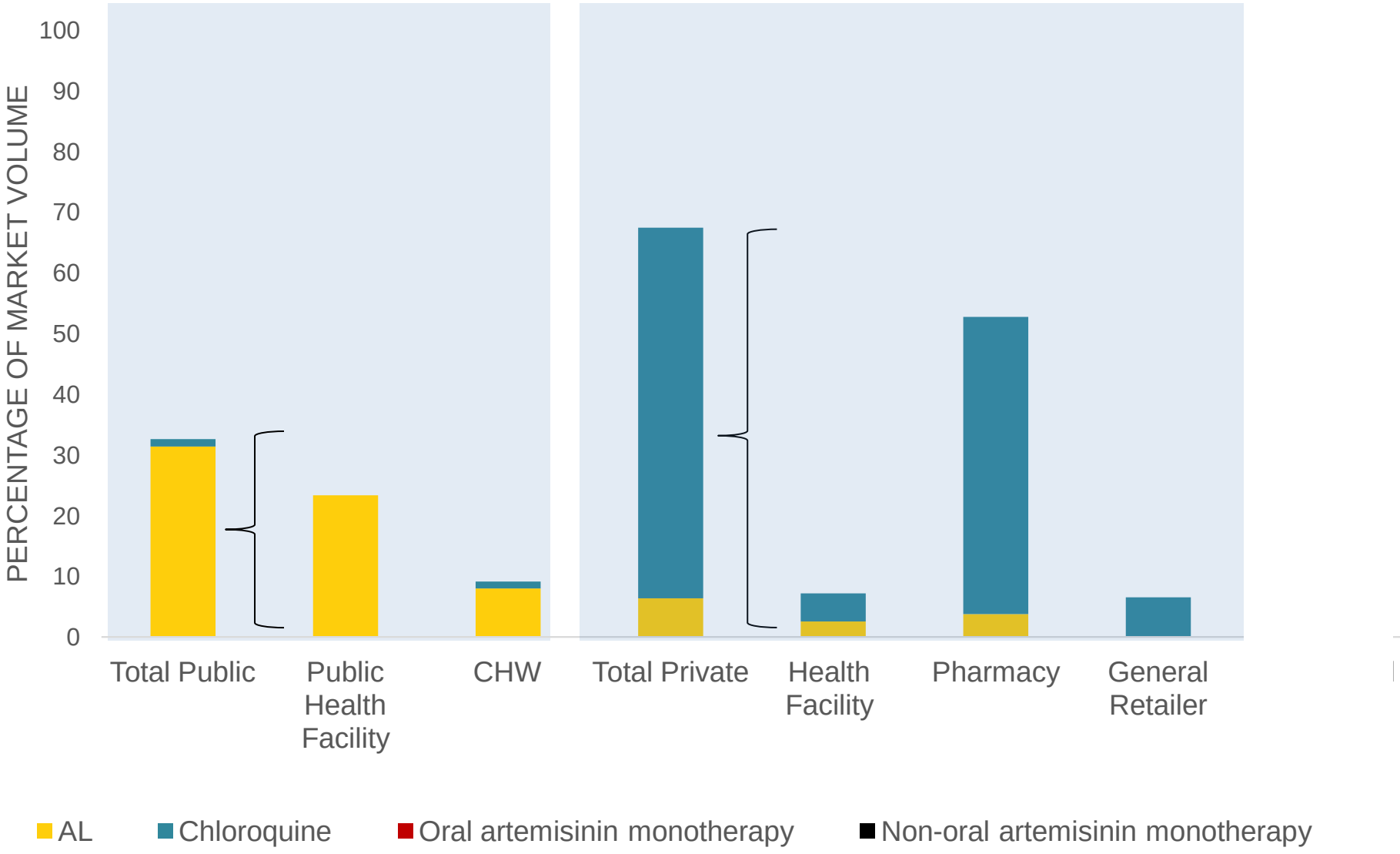
Antimalarial Market Share: 2015



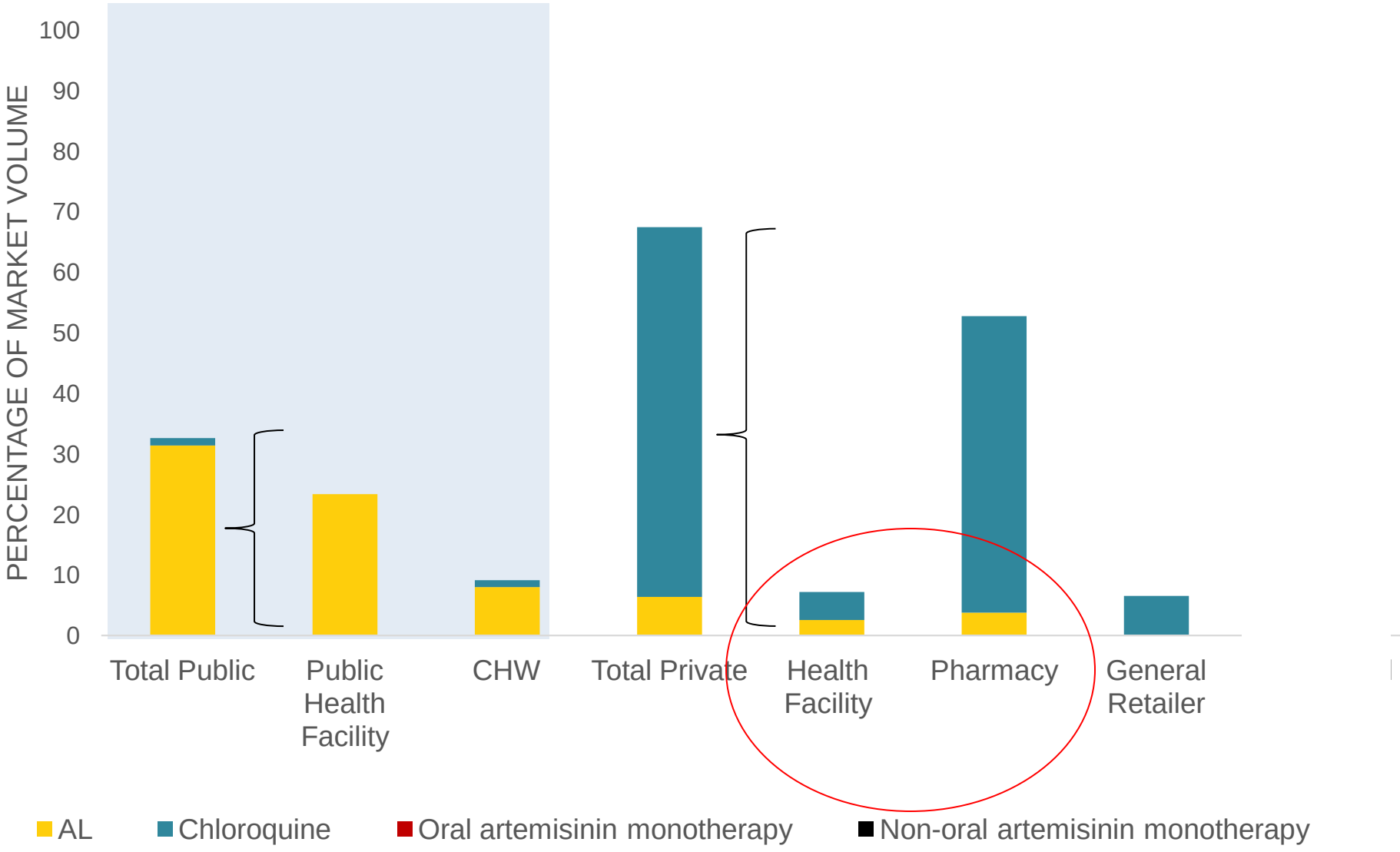
Antimalarial Market Share: 2015



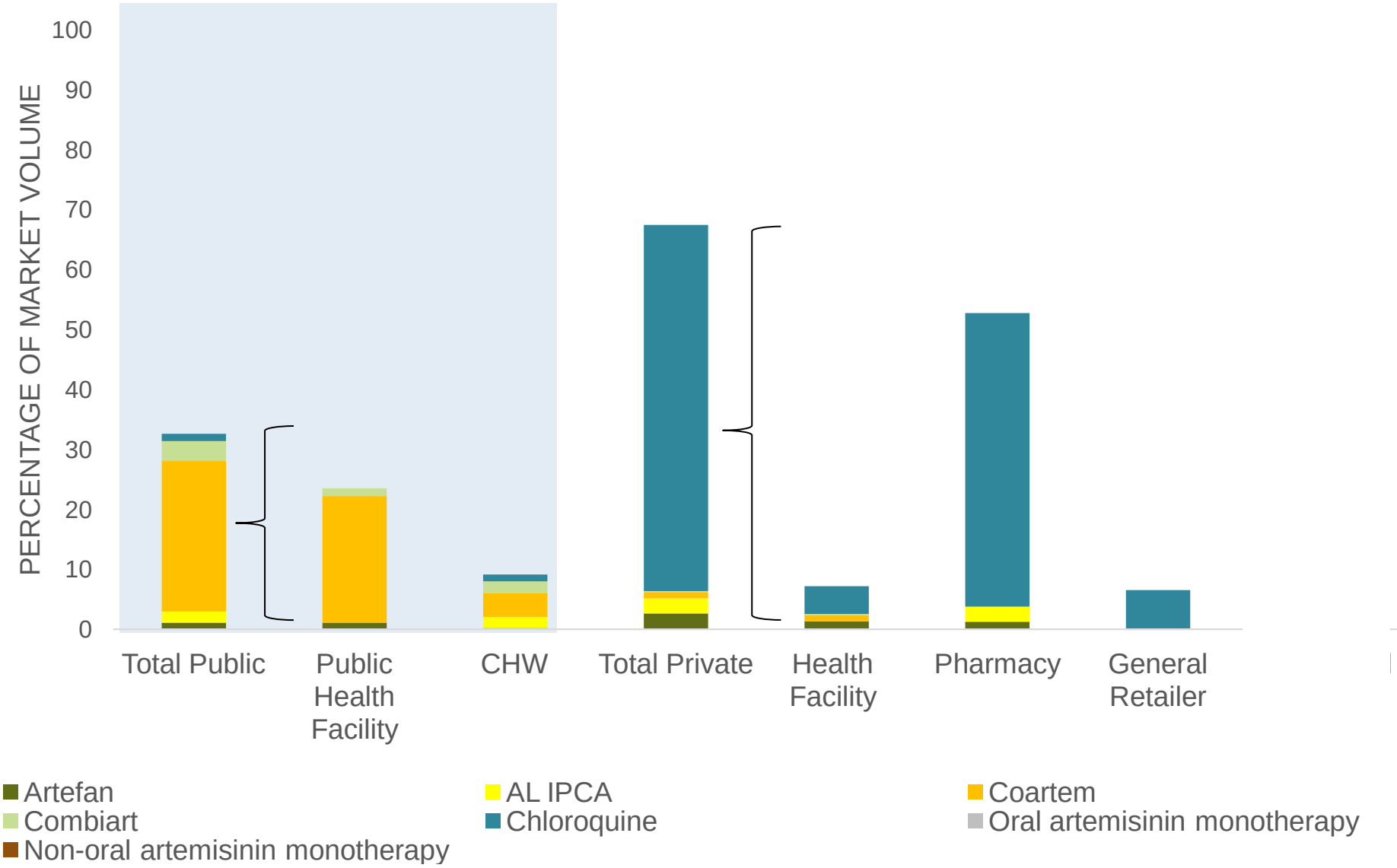
Antimalarial Market Share: 2015



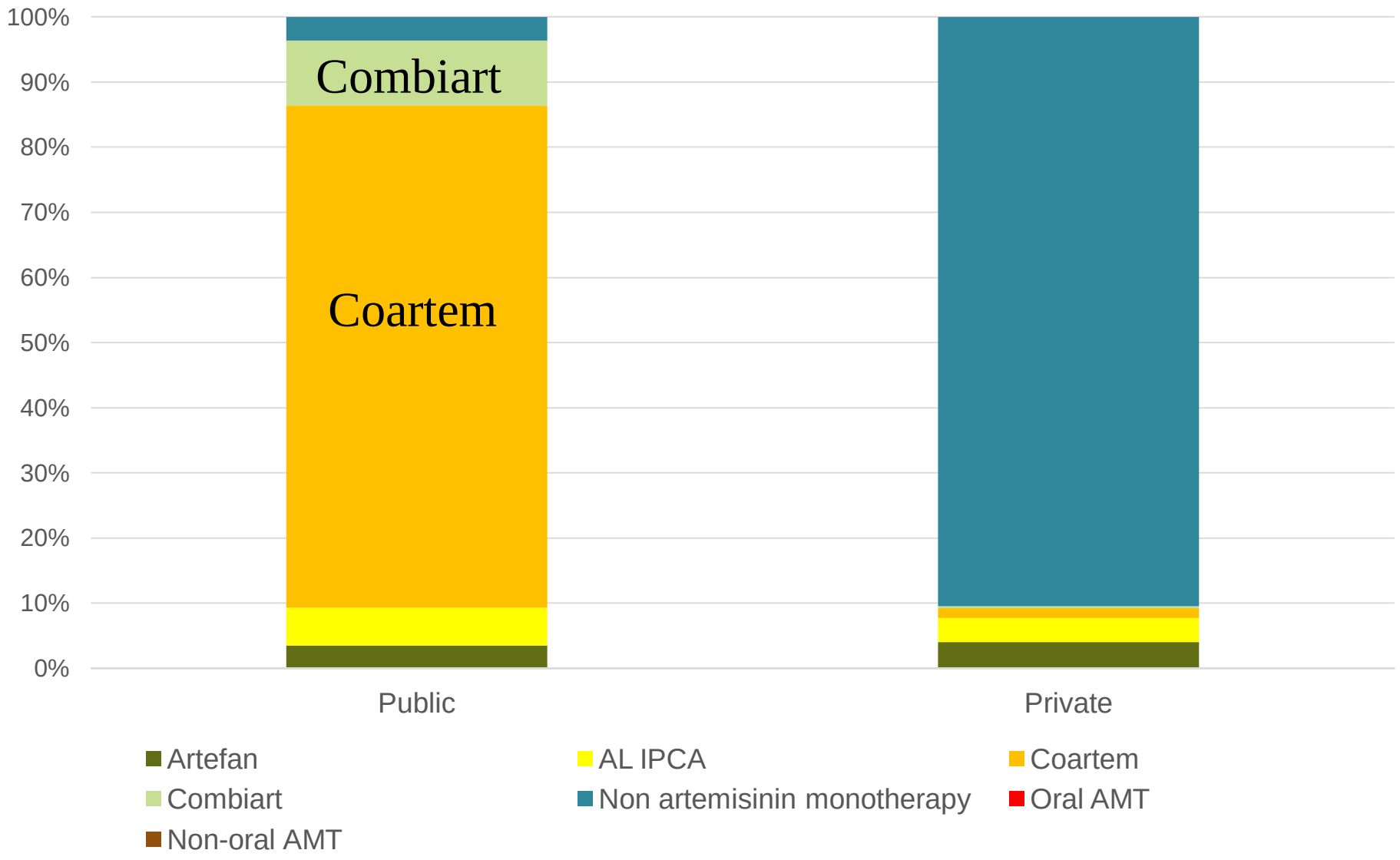
Antimalarial Market Share: 2015



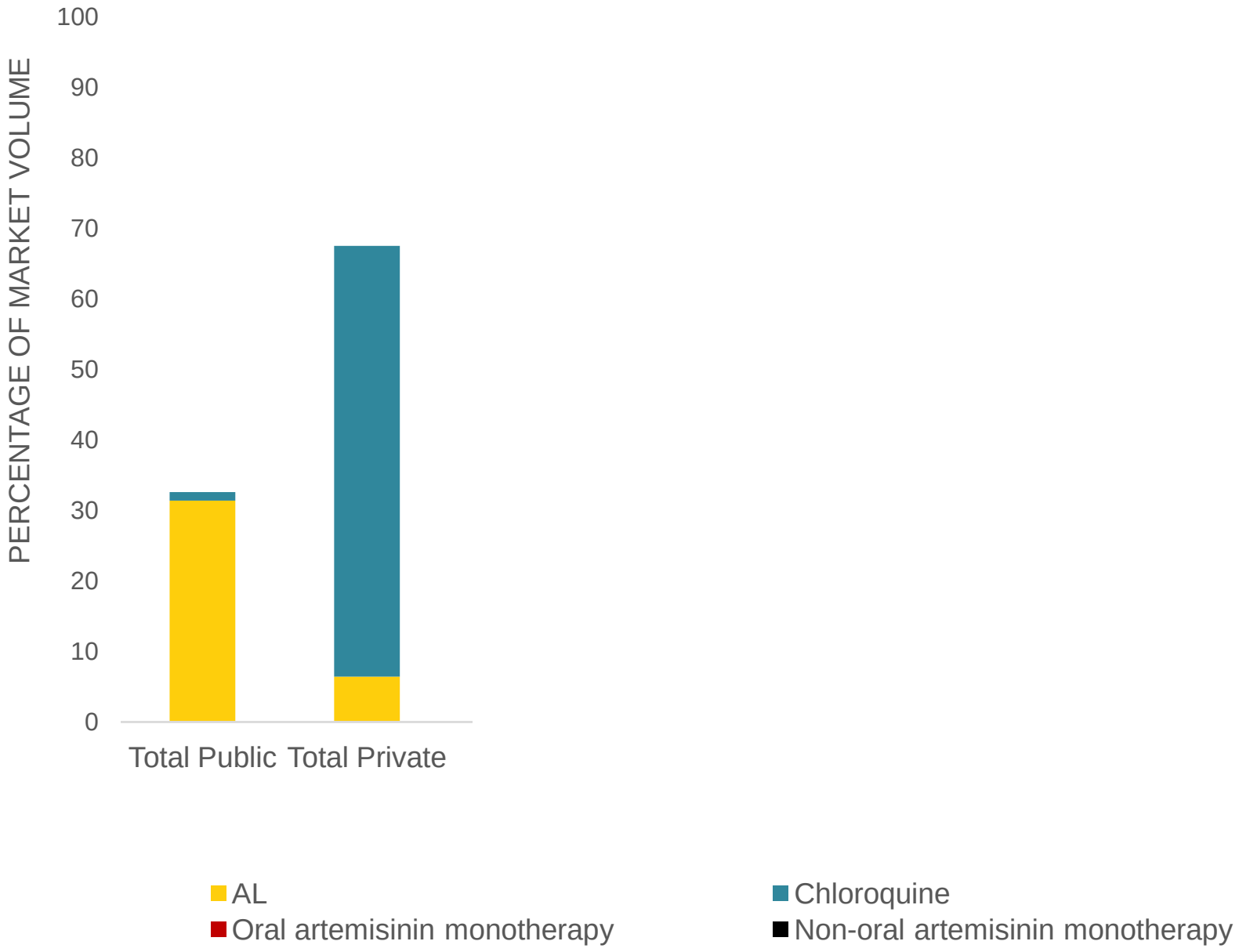
Antimalarial Market Share (by type of ACT): 2015



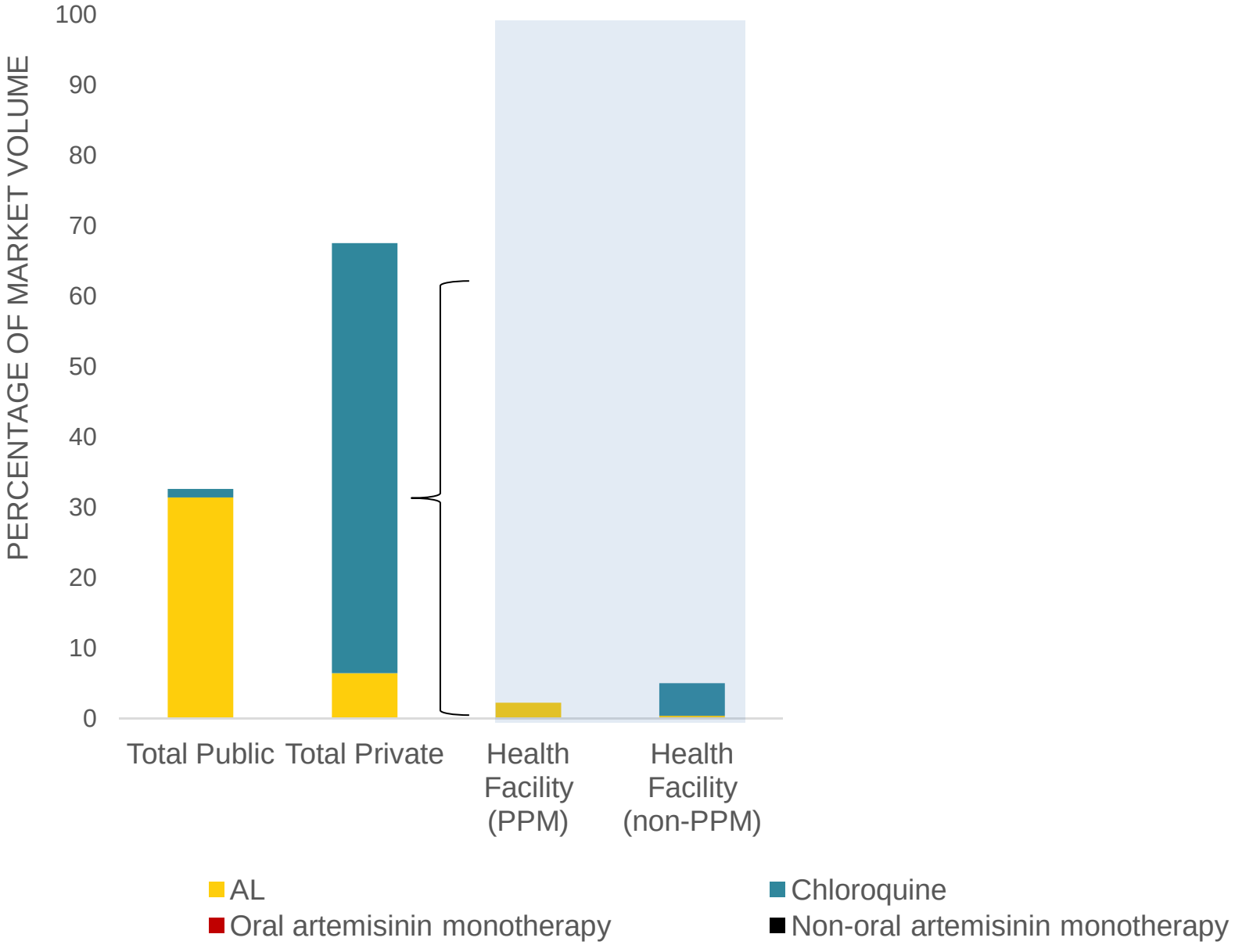
Market share within each sector 2015



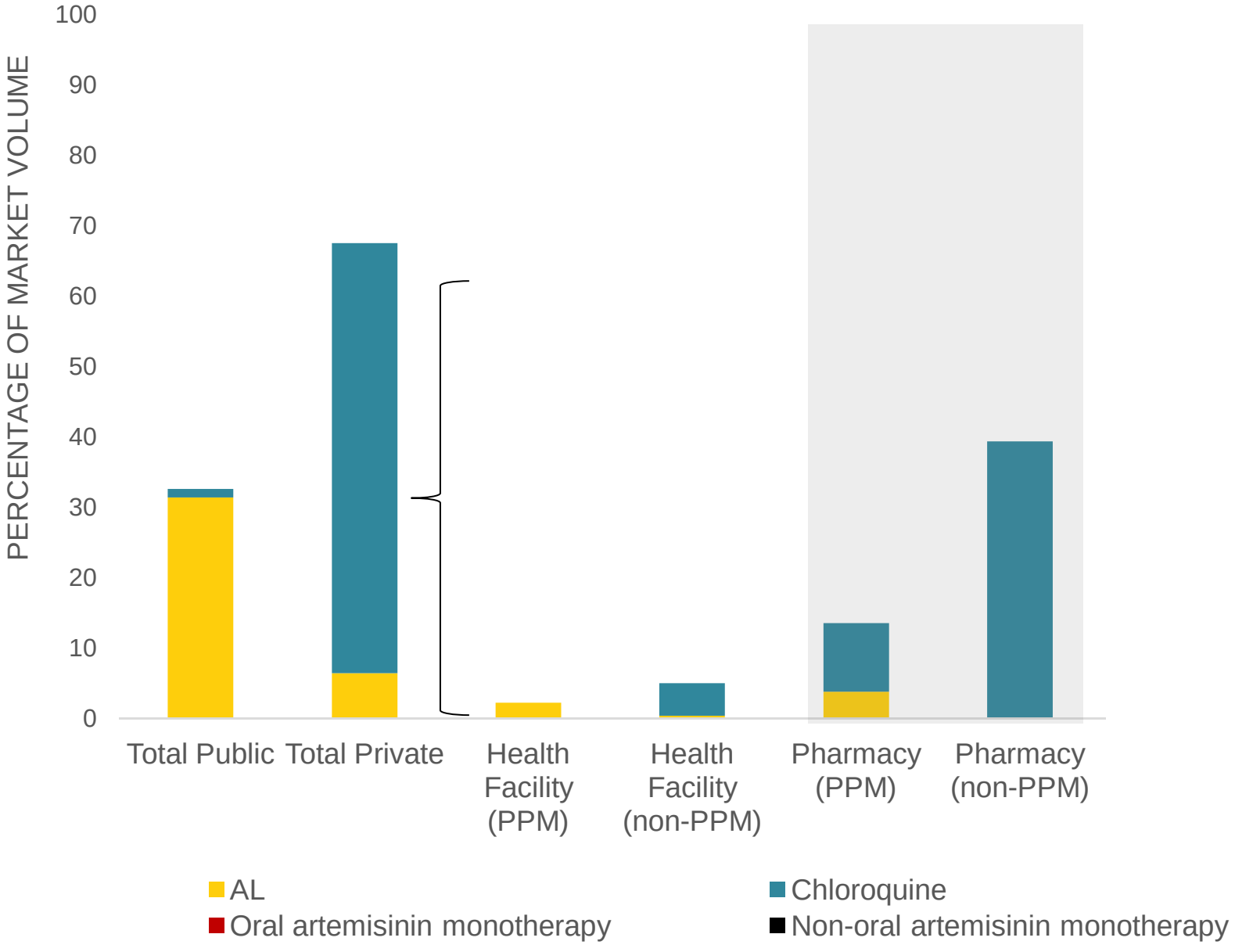
Antimalarial market share in 2015



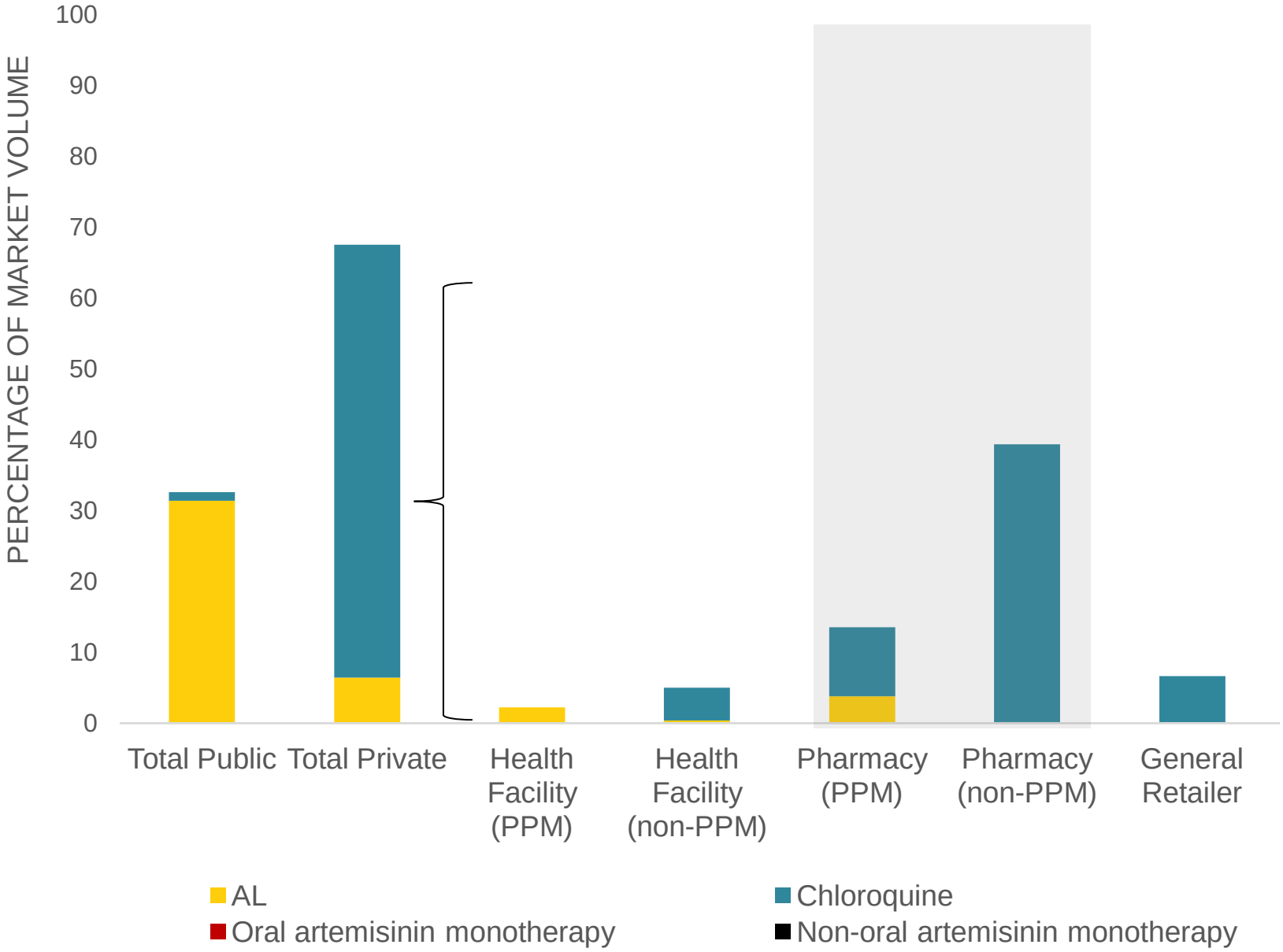
Antimalarial market share in 2015



Antimalarial market share in 2015

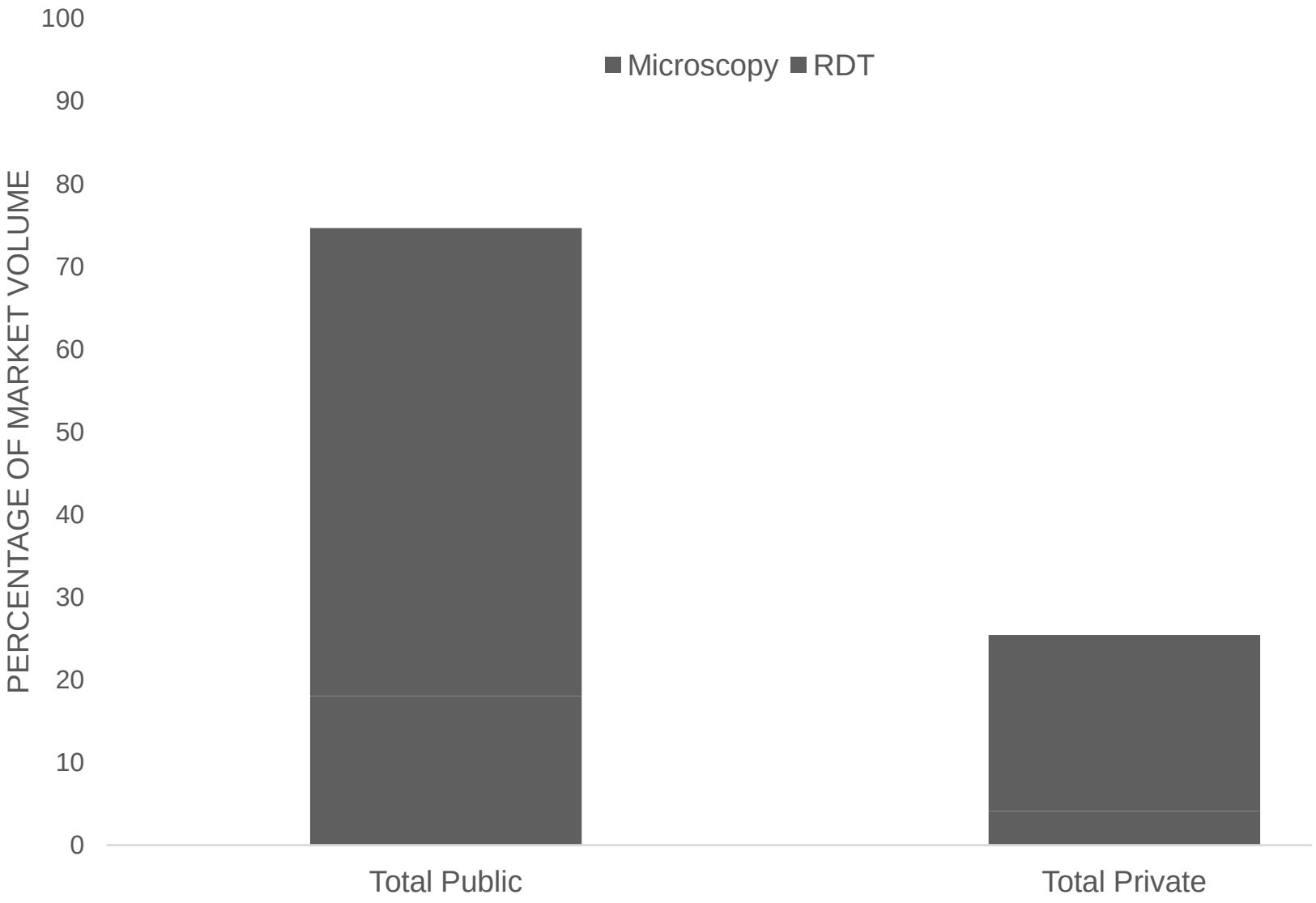


Antimalarial market share in 2015

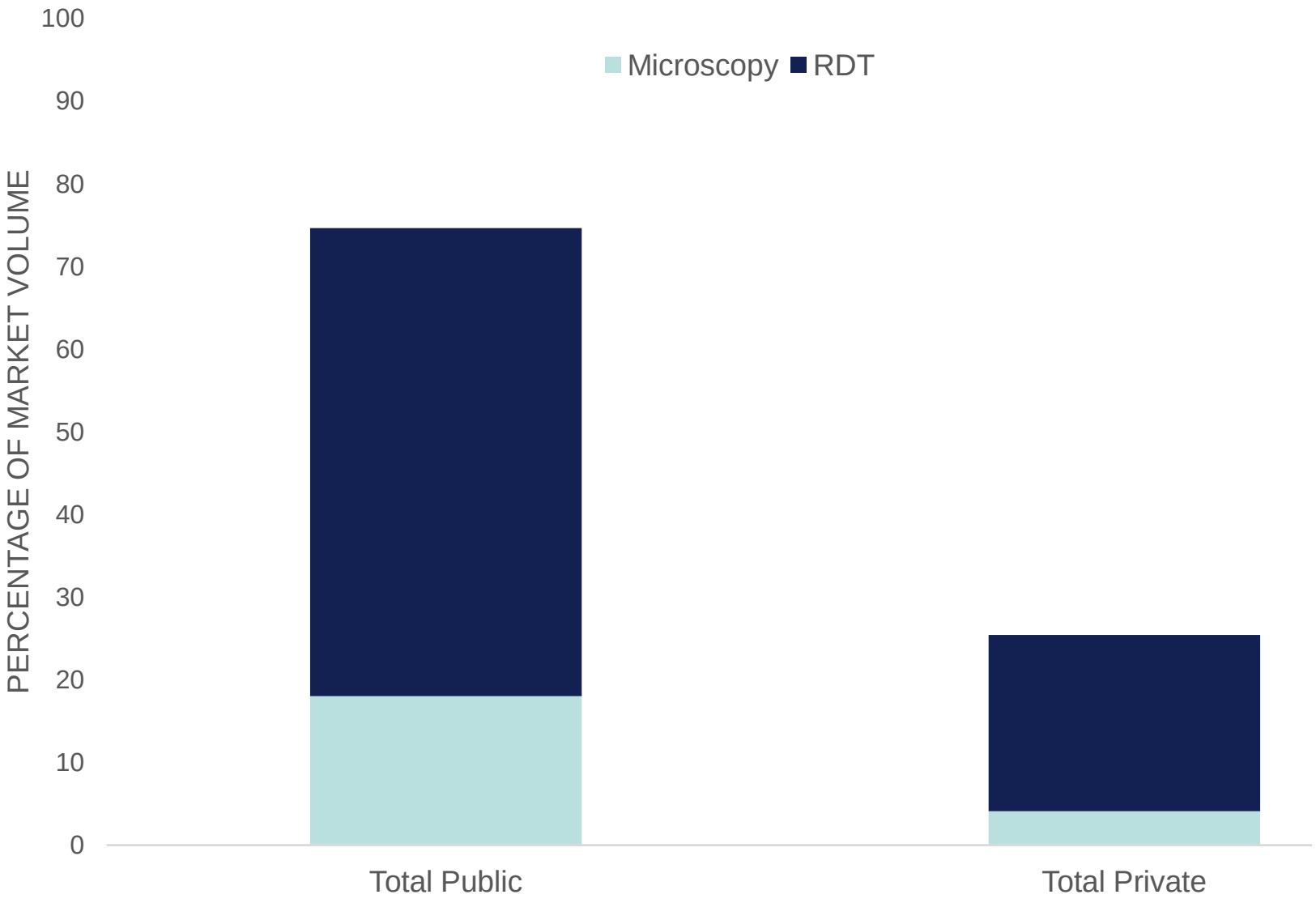


What is the malaria diagnostic market share between the public and private sectors?

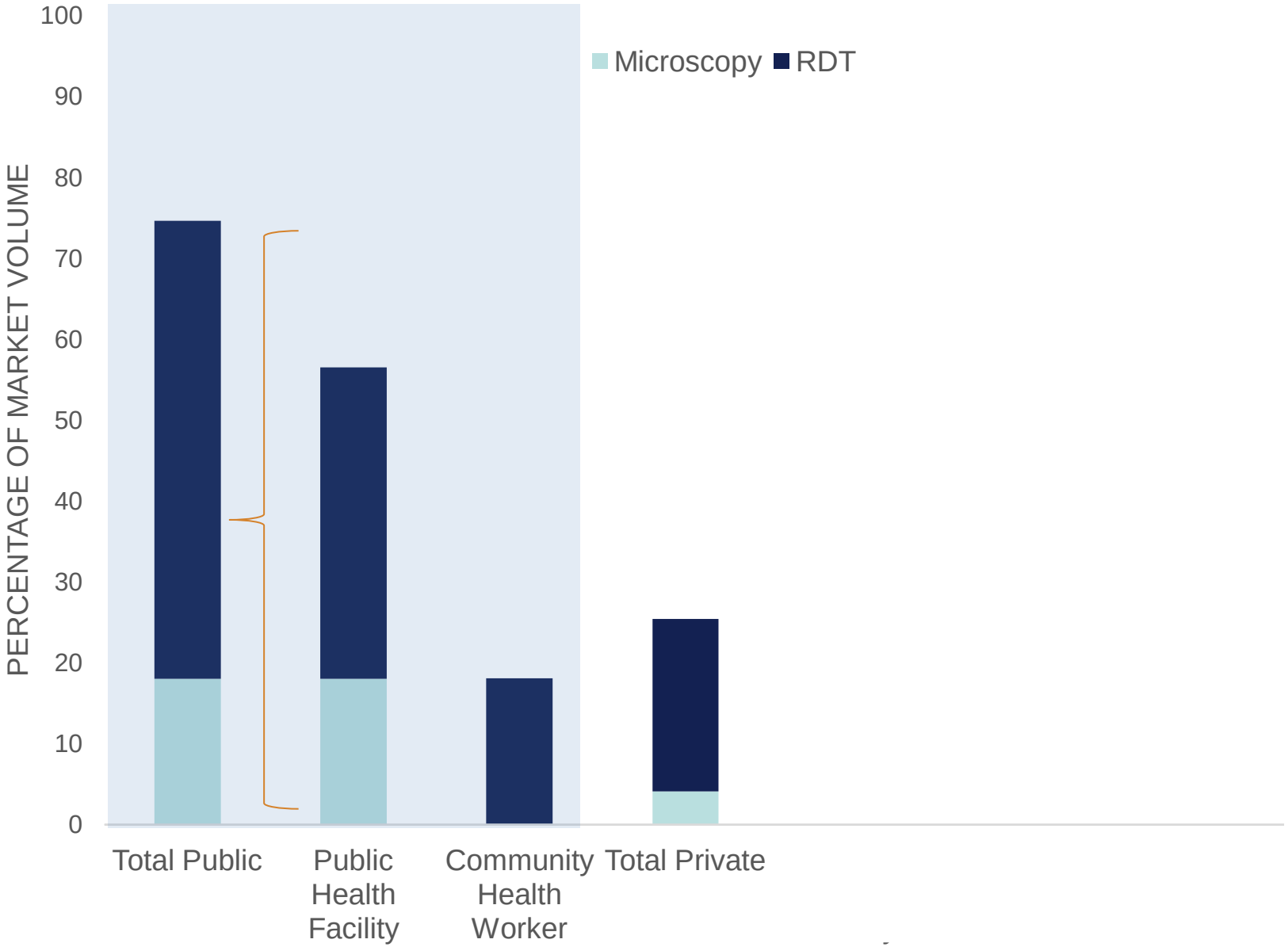
Malaria Diagnostic Market Share in 2015



Malaria Diagnostic Market Share in 2015

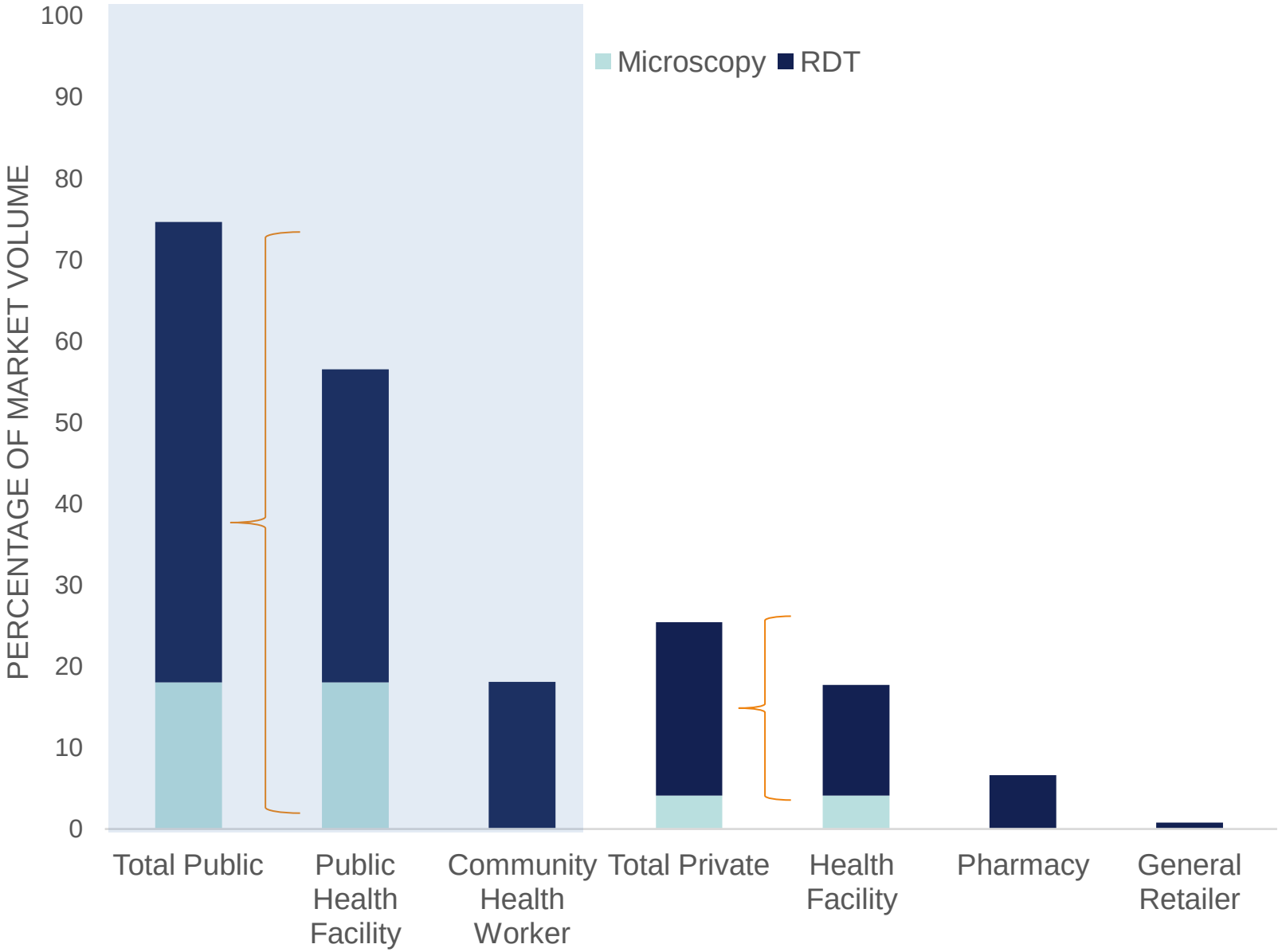


Malaria Diagnostic Market Share in 2015



Relative sale/distribution of malaria tests in the last week

Malaria Diagnostic Market Share in 2015



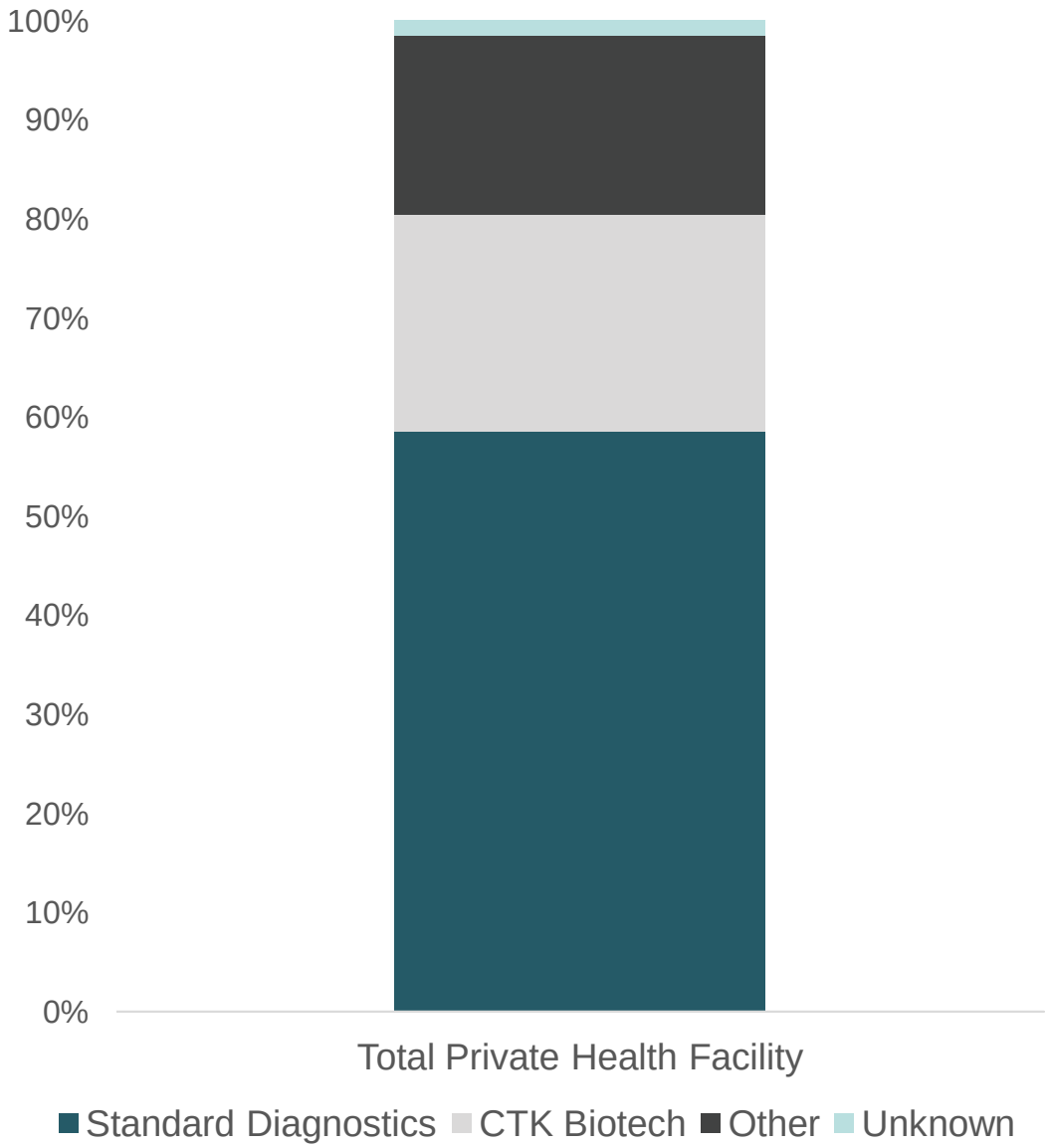
Malaria Diagnostic Market Share in 2015

Public sector:

100%

Standard Diagnostics

(not shown).



5 insights

malaria market share in Lao PDR

1. **Private-sector antimalarial market share is greater than for the public sector, and pharmacies distribute about half of all antimalarials in southern Lao PDR**

2. **However, most testing is done through the public sector and using RDTs.**

3. **Chloroquine is the most commonly distributed antimalarial, namely in the private sector and by pharmacies.**

4. **Market share data show that most ACTs are distributed through the public sector.**

5. **Most of the chloroquine distributed is by pharmacies located in the non-PPM areas.**

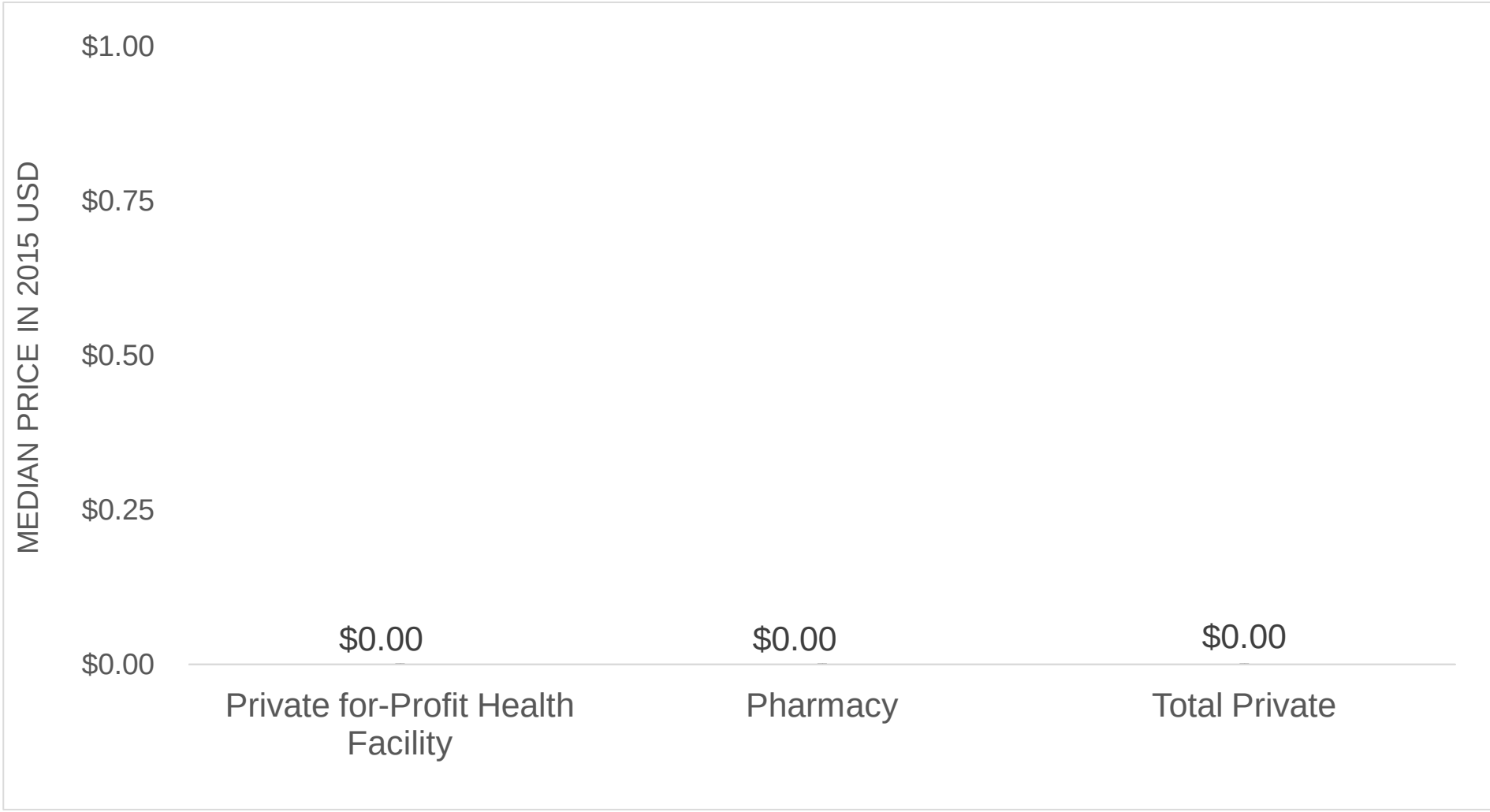
What is consumer price of RDT and first-line treatment?



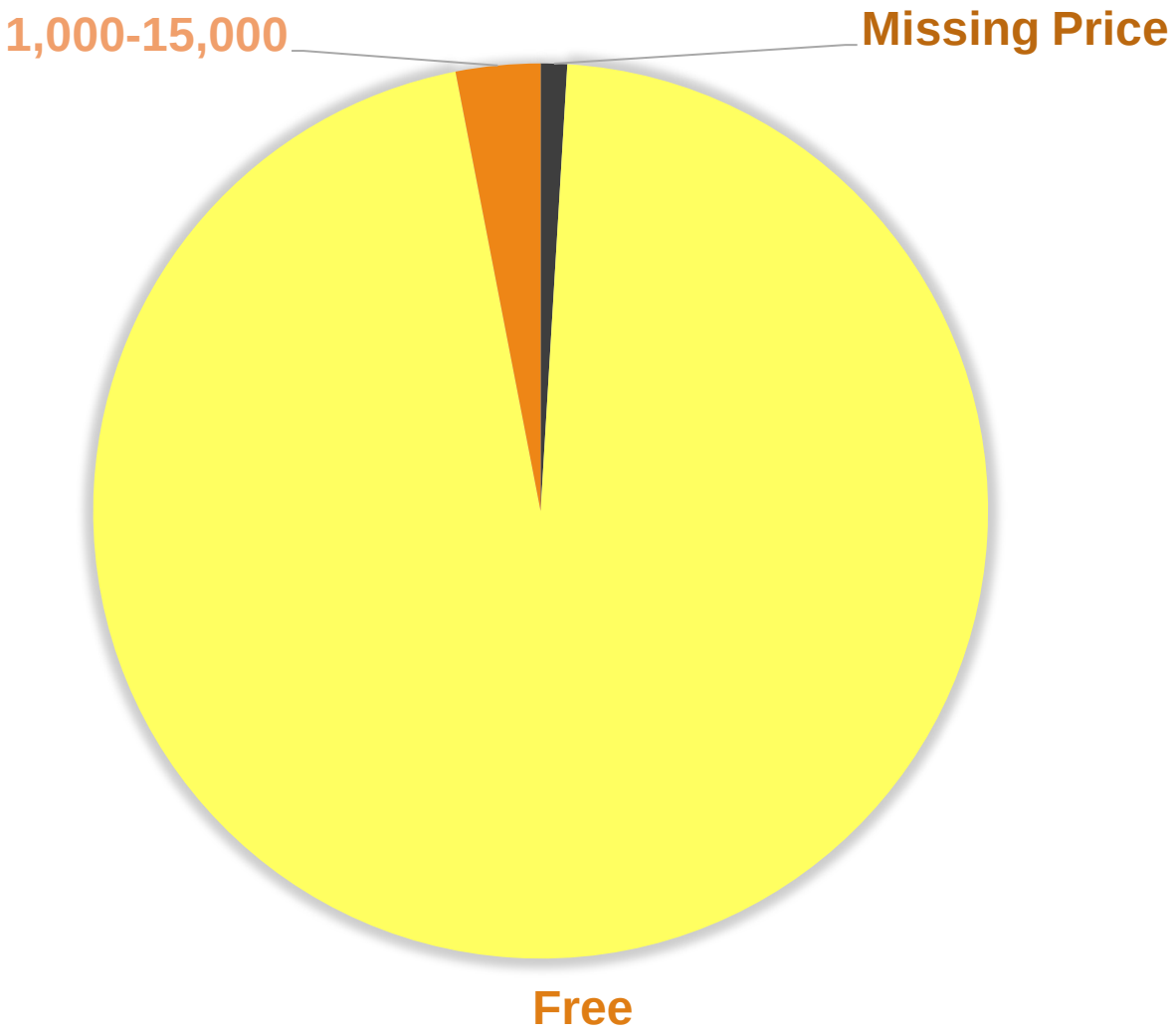
What is the price of antimalarial treatment and diagnostic testing?

Among all AL available within private-sector facilities

Median private-sector consumer prices for AL for adults, 2015

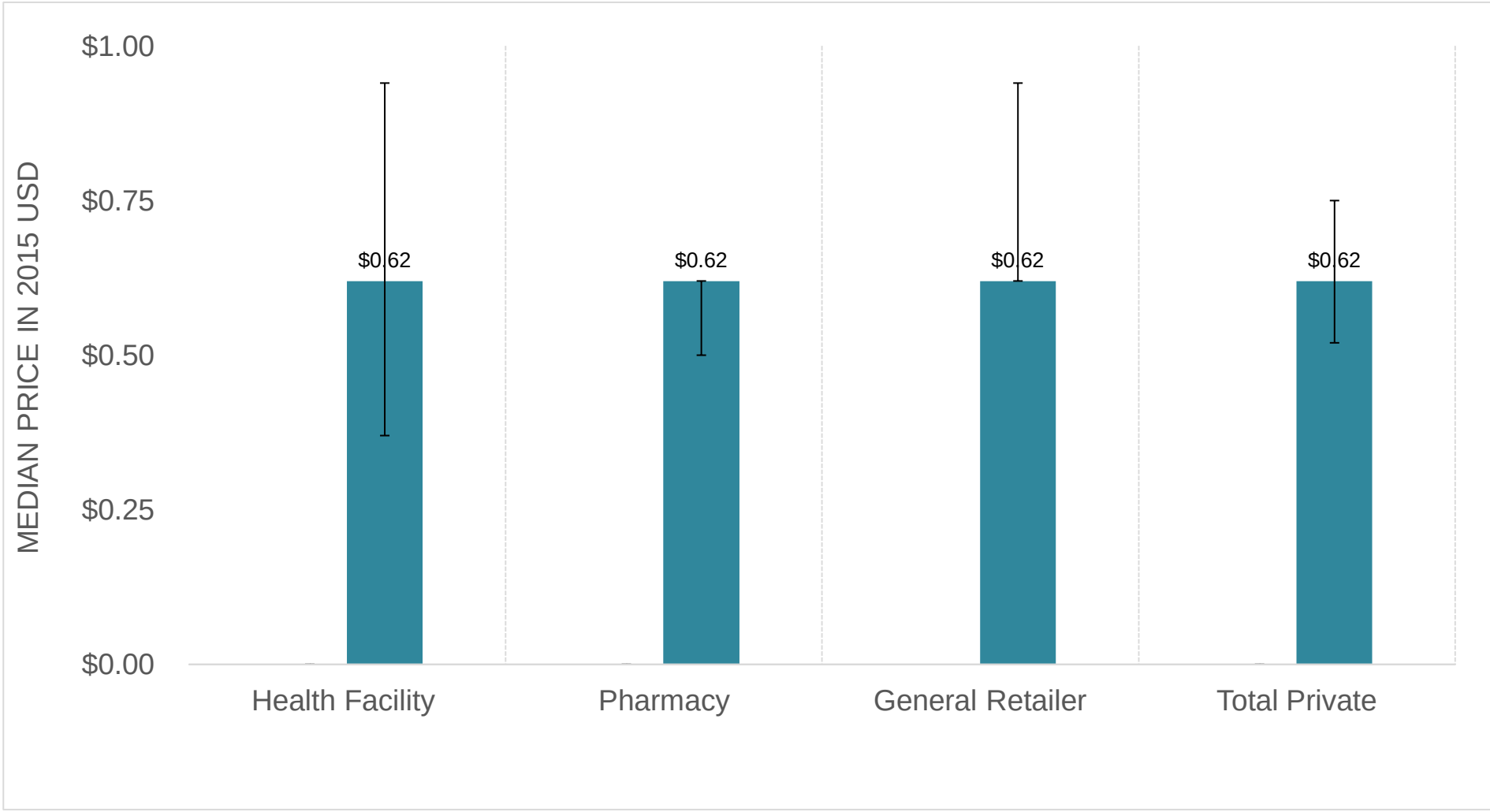


Types of AL Products Audited, 2015

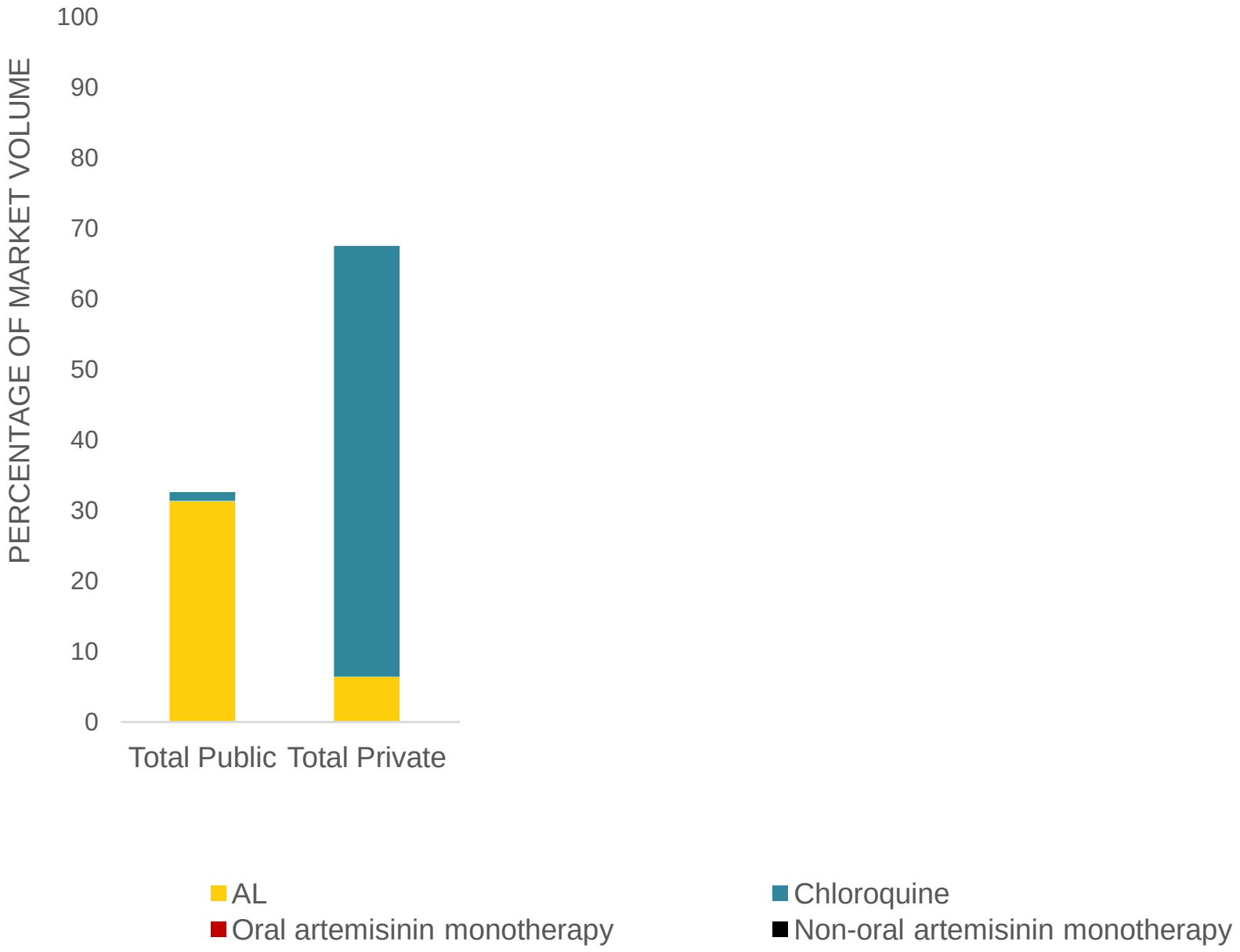


N=525

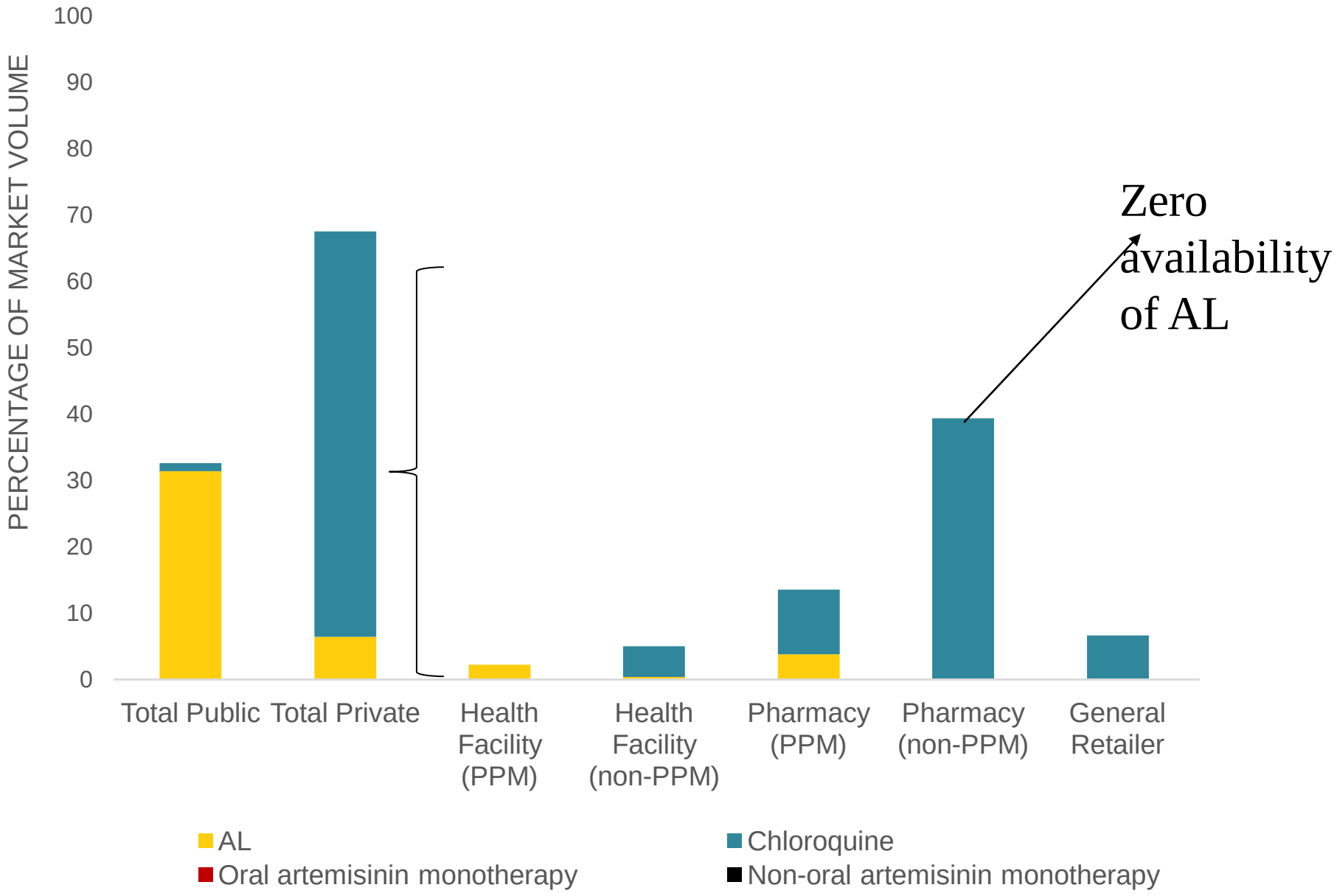
Median private-sector consumer prices for CQ for adults, 2015



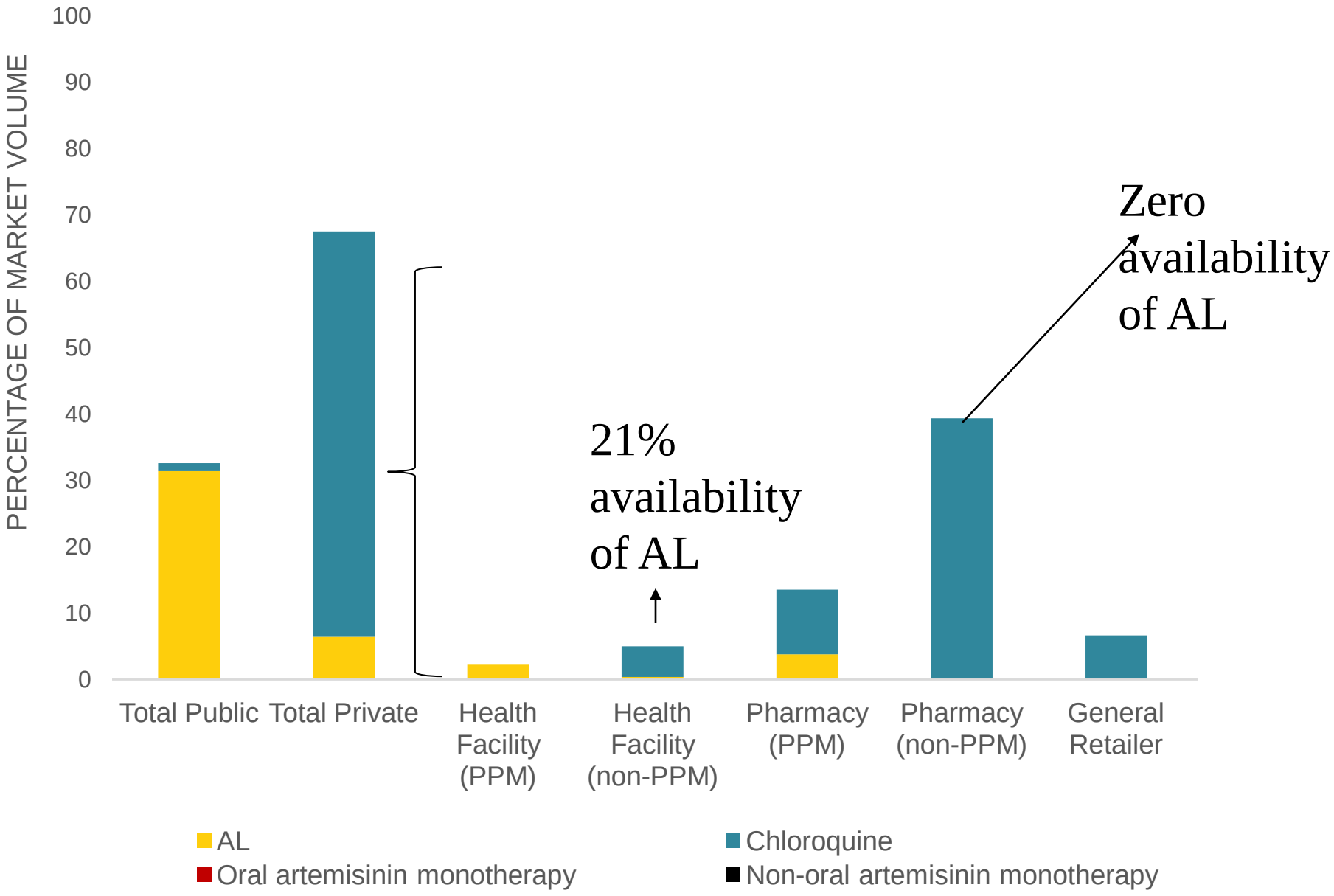
Antimalarial market share, 2015



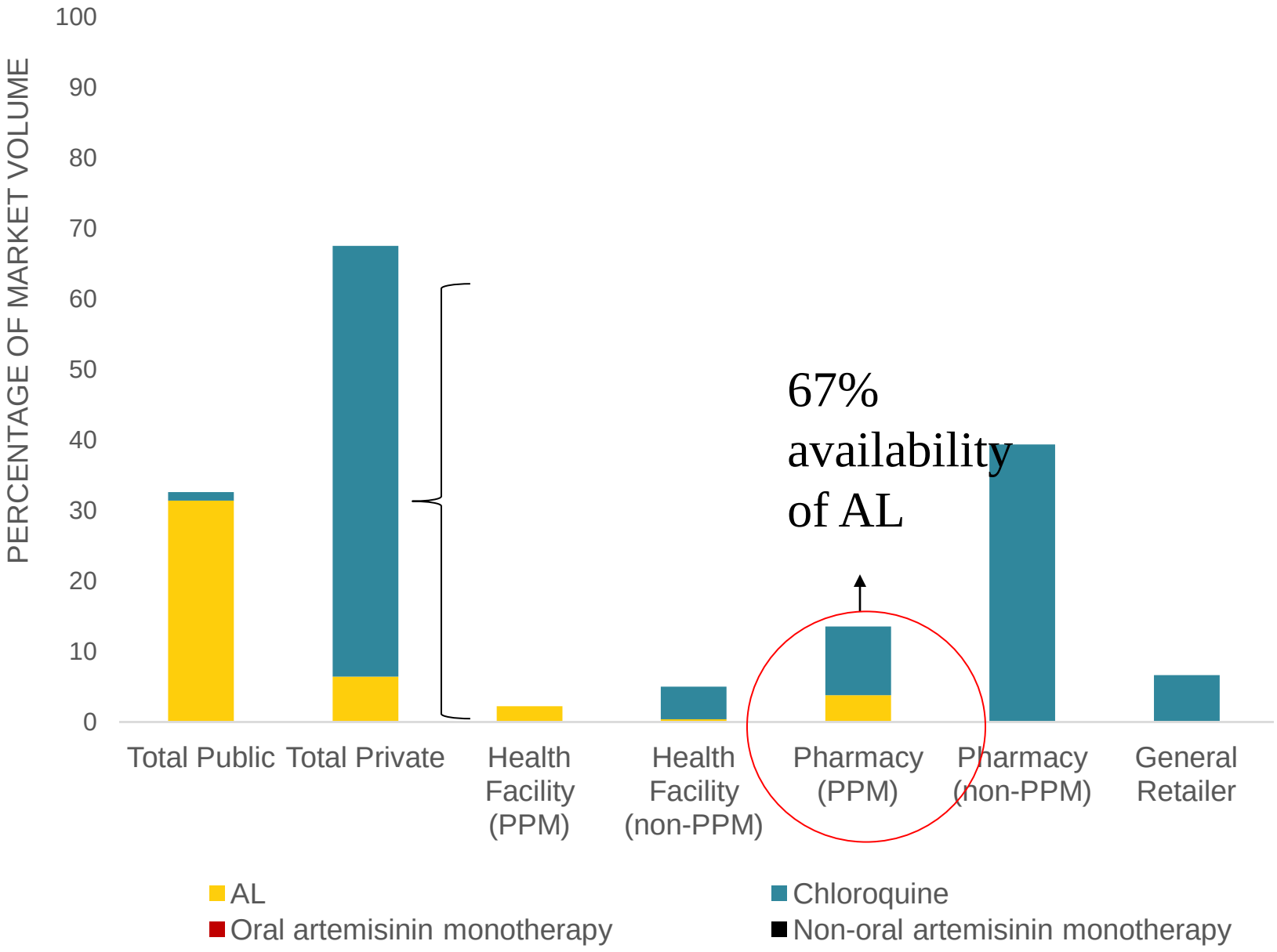
Antimalarial market share, 2015



Antimalarial market share, 2015



Antimalarial market share, 2015



Customer demand for CQ?

- Frequency for which customer demand or preference was mentioned as a reason for stocking a CQ product
  - In PPM districts: 65.7%
  - In non-PPM districts: 72.8%

Provider perceptions?

- Nearly half of these private-sector providers reported CQ as:
  - (1) the government recommended treatment for pf or pv malaria, OR
  - (2) or as the most effective treatment for malaria, OR
  - (3) as the most often recommended medicine they use to treat malaria.



MARAQUINE:

Most popular brand

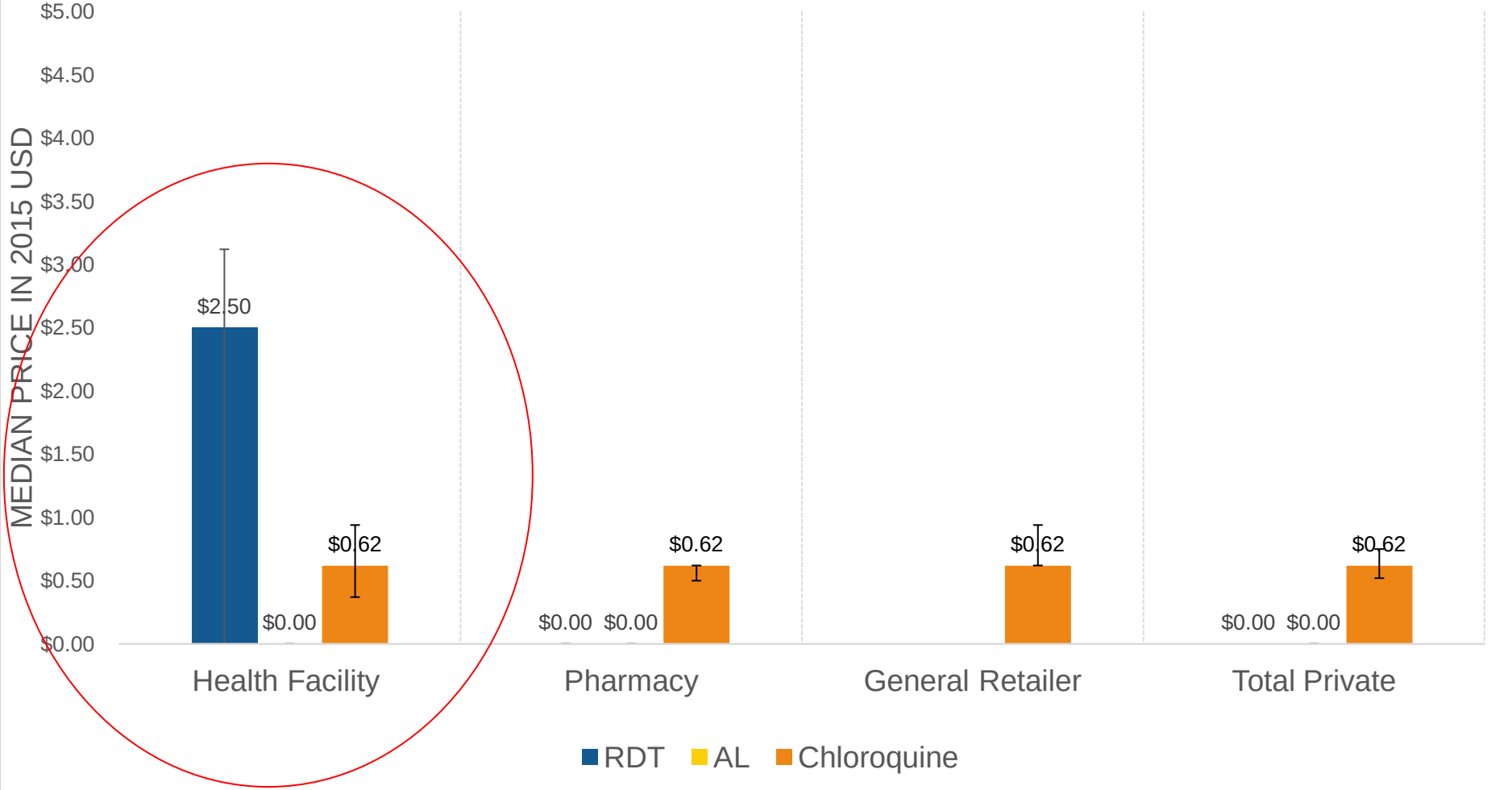
Manufactured in Laos

Trusted by patients?

One of the few AM with Laos language writing: brand recognition and trust?

Among all RDT 7 AM available within private-sector facilities

Median prices for malaria RDT testing, 2015

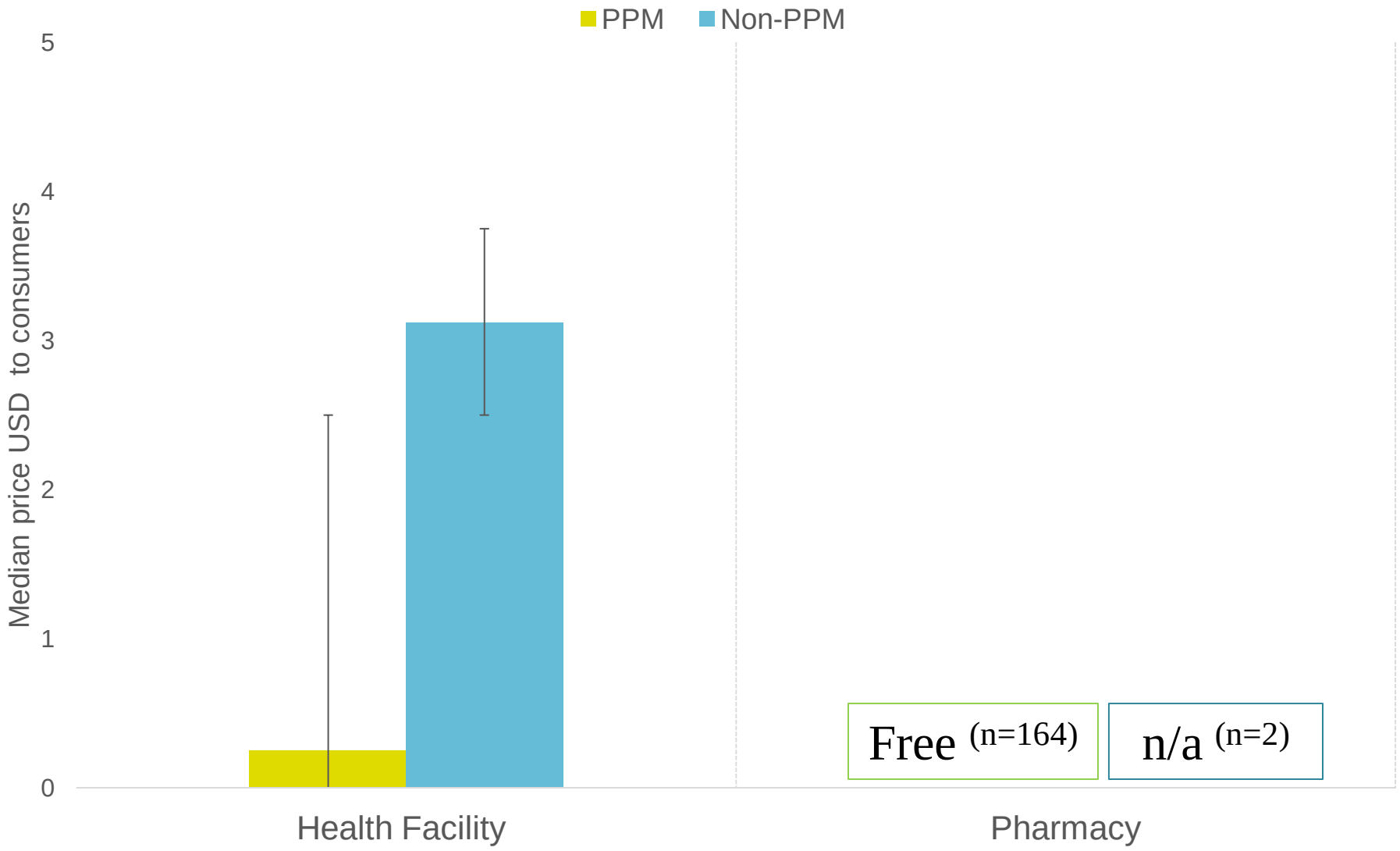


Comparison of PPM & non-PPM Private Health Facilities & Pharmacies



Among all outlets with at least one AM in stock

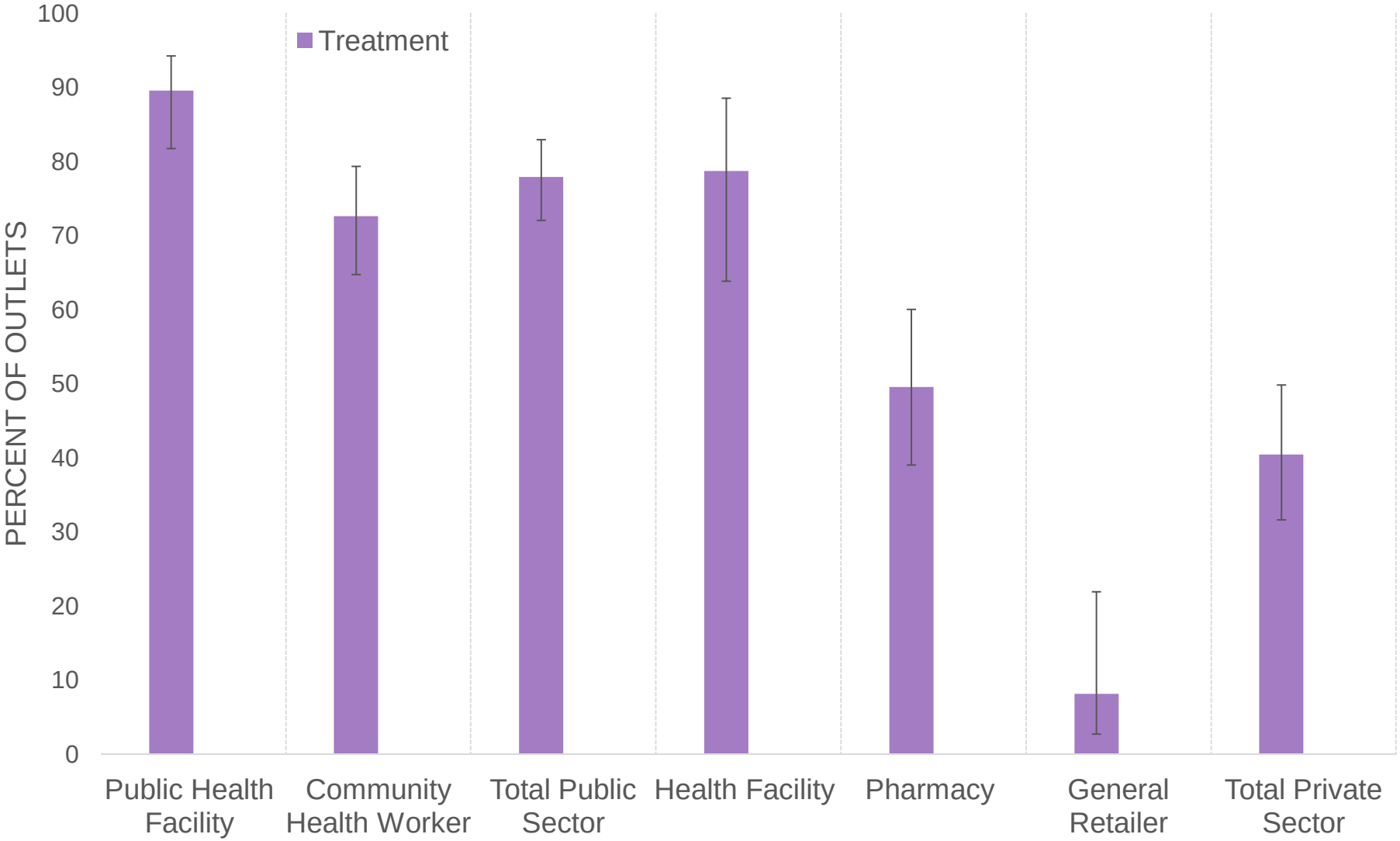
Price of mRDT for adults across outlets located in PPM and non-PPM areas, 2015



Do the providers working in outlets stocking antimalarials know the correct first-line treatment for uncomplicated malaria?

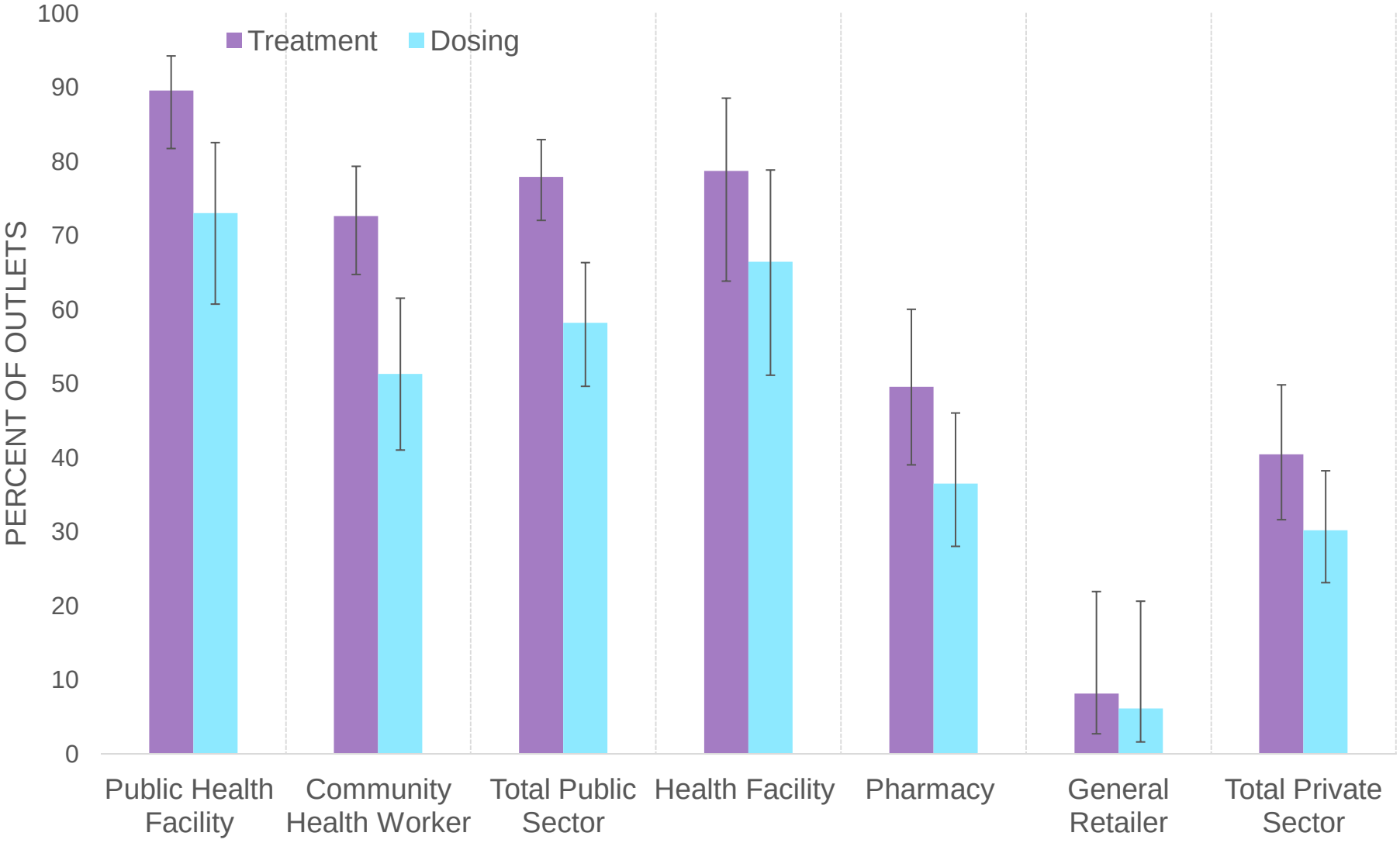
Among all outlets with at least one AM or/& malaria test in stock

Providers who correctly state the first-line treatment (AL) and first-line dosing regimen (AL) for uncomplicated malaria in 2015



Among all outlets with at least one AM or/& malaria test in stock

Providers who correctly state the first-line treatment (AL) and first-line dosing regimen (AL) for uncomplicated malaria in 2015

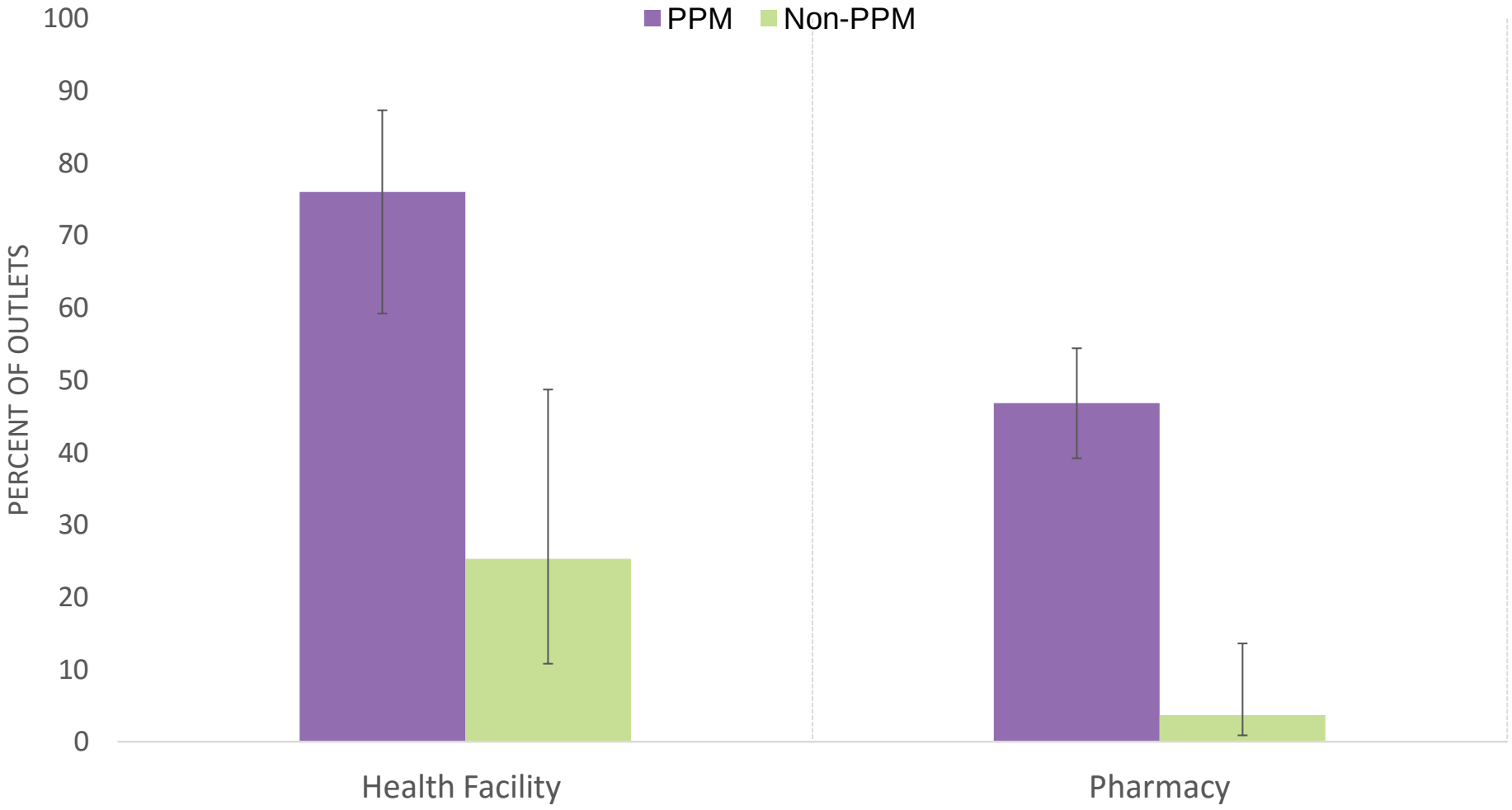


Comparison of PPM & non-PPM Private Health Facilities & Pharmacies



Among all outlets with at least one AM or/& malaria test in stock

Providers who correctly state the first-line dosing regimen for uncomplicated malaria (AL) for an adult in 2015



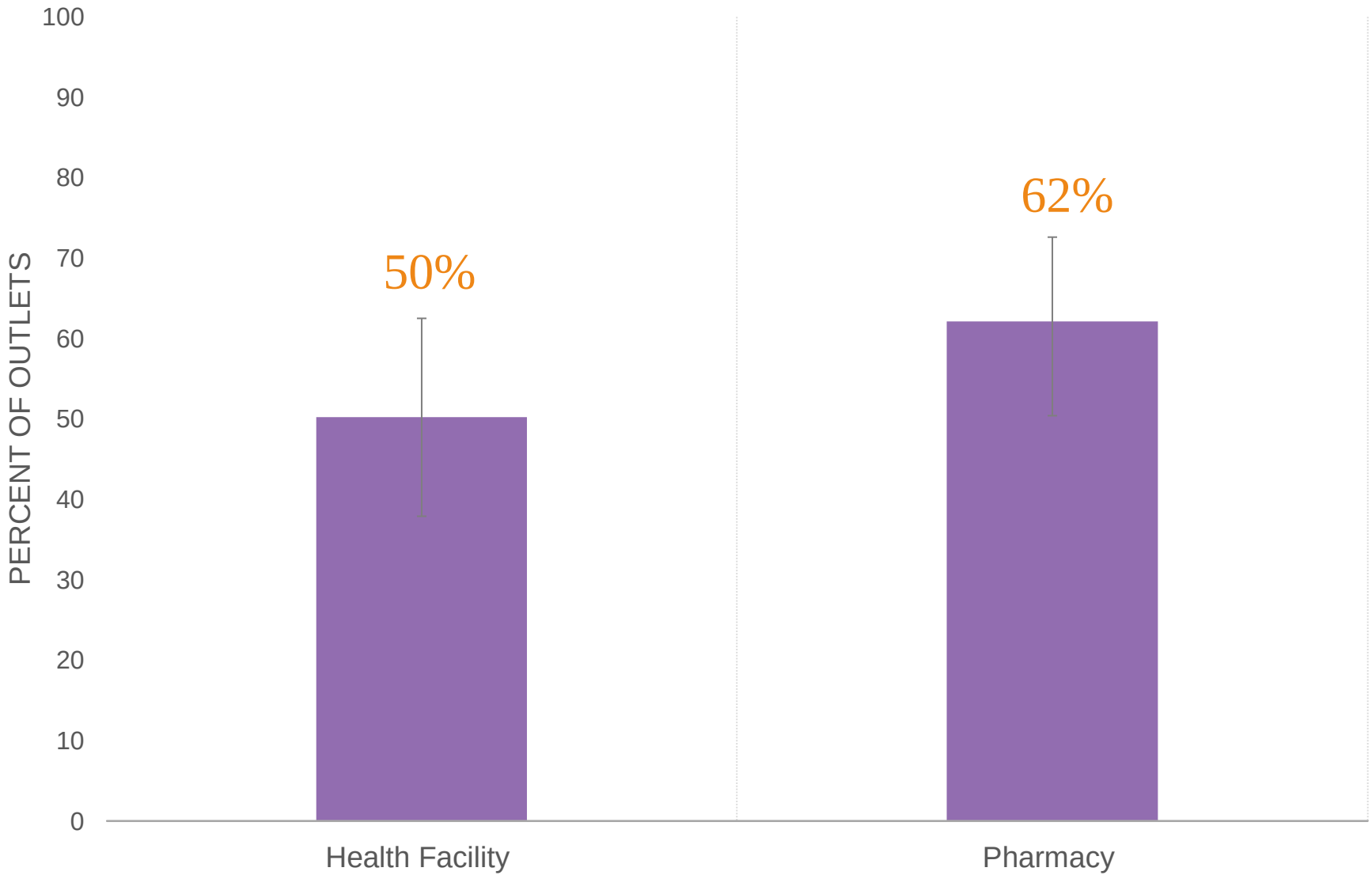
Do private providers receive training, supervision, and reporting on case load data?

Do providers receive training and supervision?



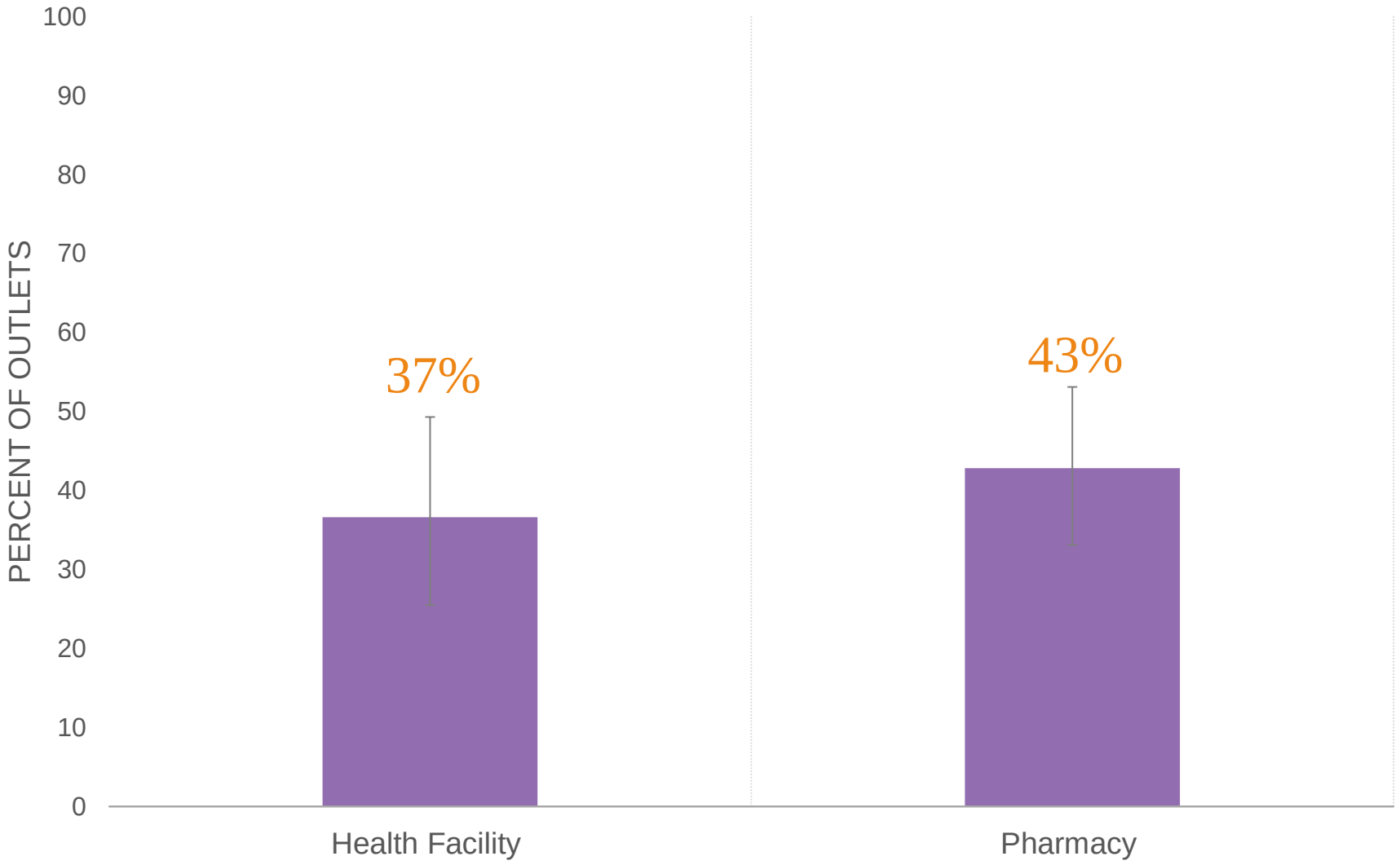
Among all outlets with at least one AM or/& malaria test in stock

Providers who reportedly received a supervisory or regulatory visit within the past year in 2015



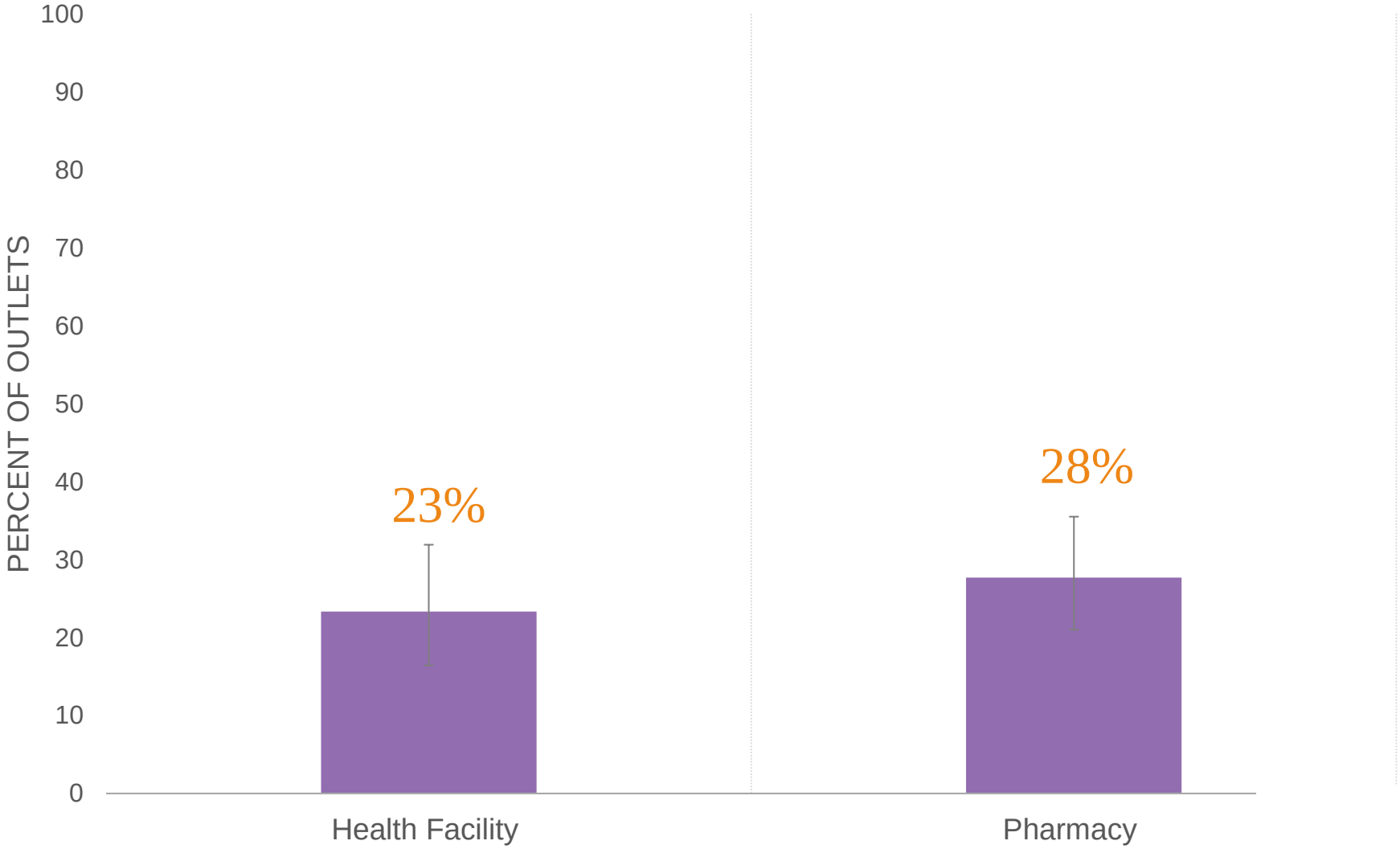
Among all outlets with at least one AM or/& malaria test in stock

Providers who reportedly received training on malaria diagnosis (RDT and/or microscopy) in 2015



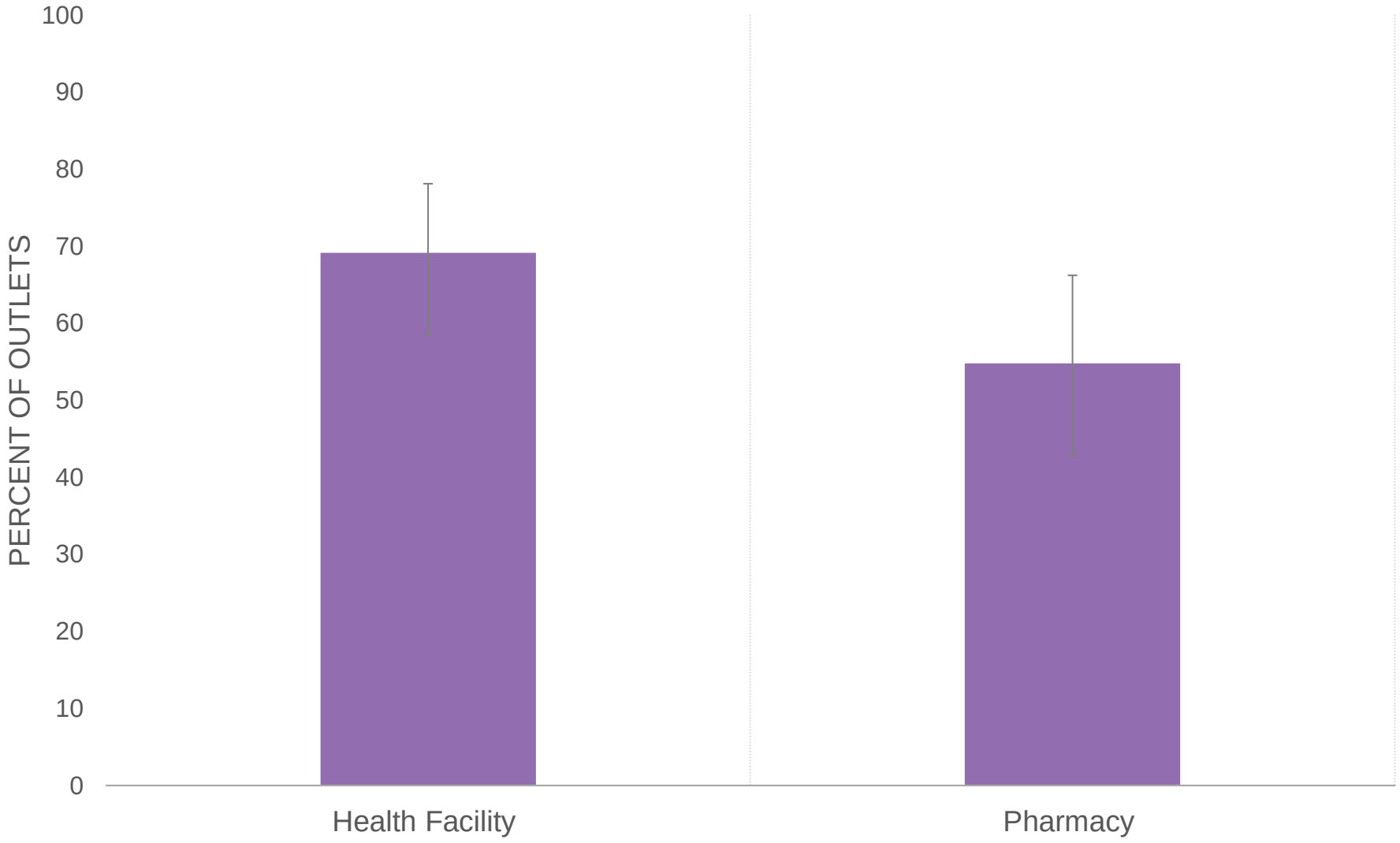
Among all outlets with at least one AM or/& malaria test in stock

Providers who reportedly received training on national malaria treatment guidelines in 2015



Among all outlets with at least one AM or/& malaria test in stock

Providers who reportedly keep records on the number of patients tested/treated for malaria in 2015

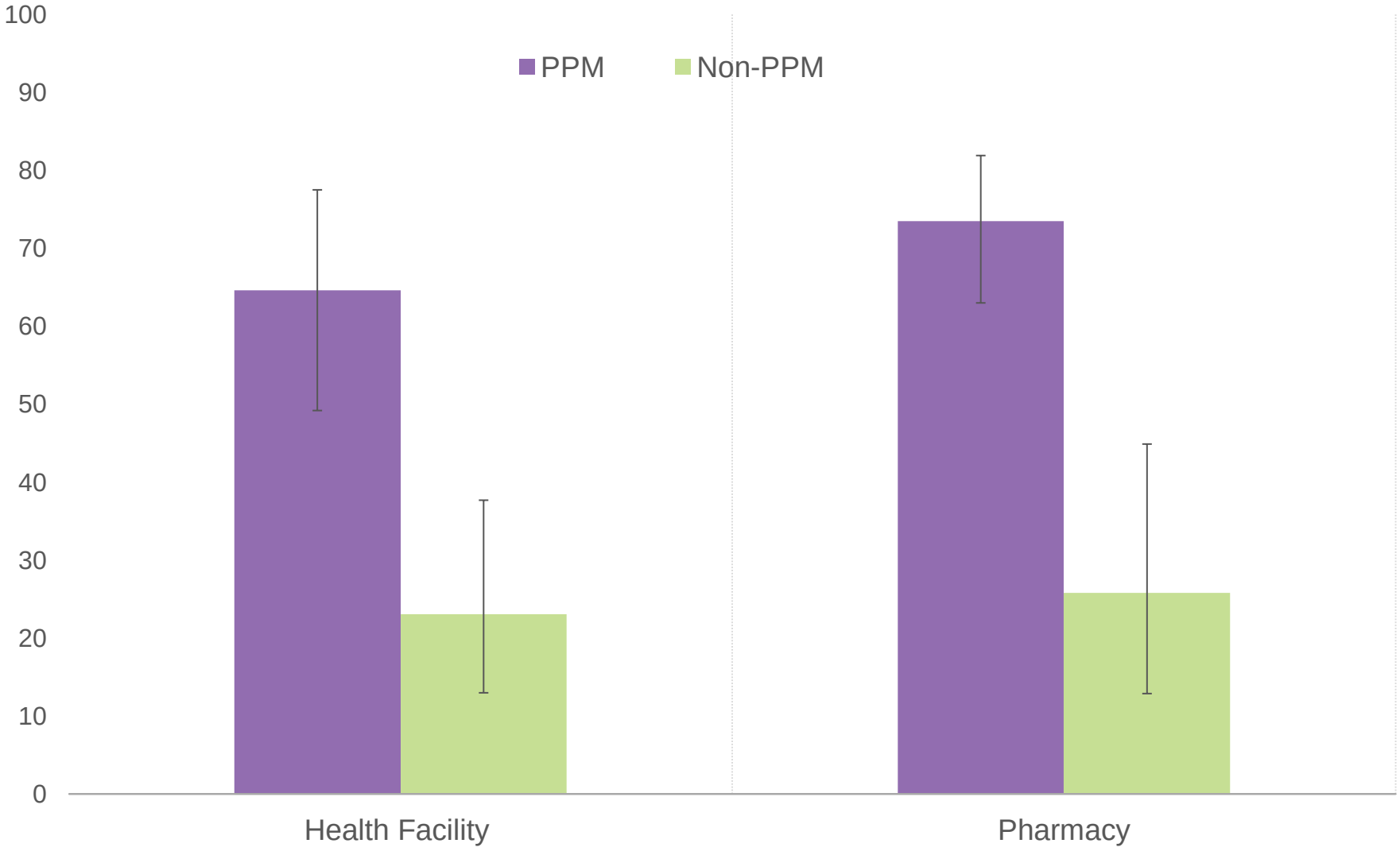


Comparison of PPM & non-PPM Private Health Facilities & Pharmacies



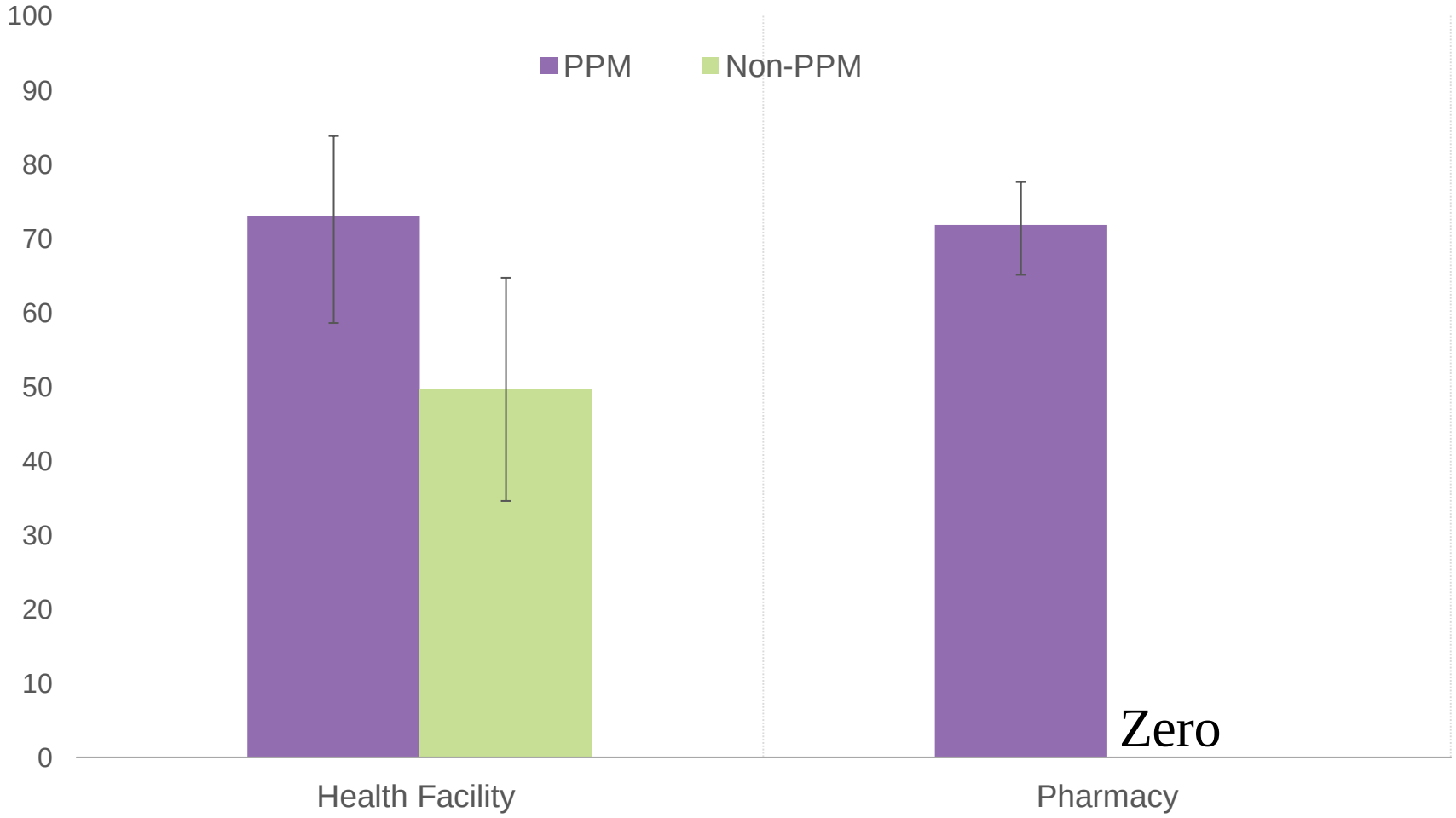
Among all outlets with at least one AM or/& malaria test in stock

Providers who reportedly received a supervisory or regulatory visit within the past year , 2015



Among all outlets with at least one AM or/& malaria test in stock

Providers who reportedly keep records on the number of patients tested/treated for malaria in 2015



6 insights

provider knowledge, training, supervision, and reporting

1. **Provider knowledge is generally high in the public sector and more variable in the private sector, though it remains high among providers in private for-profit facilities.**

2. **Only 50% of providers had correct knowledge at pharmacies.**

3. **Of providers who had knowledge, most knew the dosing regimen.**

4. **In terms of reported training, only one in three private facilities and pharmacies had training on diagnosis. Fewer had training on treatment guidelines.**

5. **50% of private for-profit facilities and 60% of pharmacies had received a supervisory visit in the last year, and over half report on caseload data.**

6. **Performance was better among providers in the among pharmacies and private health facilities in PPM districts.**

Survey Limitations



Study Limitations

1. **Data collection was implemented during Nov and Dec, not during the malaria peak season**

2. **Providers could have ‘hidden’ drugs that were not nationally registered. Mystery clients or other methods may be used in future.**

3. **Survey methodology was not designed to detect differences between PPM and non PPM outlets**

Conclusions



1. Strong readiness in the public sector to test and appropriately treat malaria cases.

2. However the private sector plays and important role in antimalarial distribution
   - Address availability and distribution of chloroquine
   - Close gaps in private sector readiness

3. Private sector outlets in districts with the PPM program were better equipped to manage malaria as compared with outlets in non-PPM districts.
   - Most striking for pharmacies.

4. Need to increase coverage of private sector engagement including passive surveillance to track and respond to all malaria cases.



Thank you

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