Online Appendix: Does Patient Demand Contribute to the Overuse of Prescription Drugs?

Carolina Lopez Anja Sautmann Simone Schaner*

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*Carolina Lopez: Brown University, carolina_lopez@brown.edu. Anja Sautmann: World Bank, asautmann@worldbank.org. Simone Schaner: University of Southern California, BREAD, and NBER, schaner@usc.edu.

A Theoretical Framework

Malaria Risk and Beliefs

Recall that beliefs about malaria risk are denoted by π. We assume that the patient exhibits observable symptoms, described by a vector γ. In addition, both the patient and the doctor receive an unobservable signal, ϵ and η, respectively. As a result, patients believe they have malaria with probability $\pi(\gamma, \epsilon)$, while doctors believe the malaria probability is $\pi(\gamma, \eta)$.

Since doctors have medical expertise and access to diagnostic tests, we assume that the signal on the patient side is strictly less informative than the doctor signal; that is, ϵ is correlated with the true malaria status of the patient and therefore with η, but does not contain additional information for the doctor that can improve her diagnosis.

The presence of signal ϵ means that different patients with the same observed symptoms γ may respond differently to the same prescription. Since the doctor does not observe ϵ, she will take into account expected patient preferences but cannot fully predict if a given patient will purchase what she prescribes. Similarly, doctors may make different prescription choices based on η for patients with the same symptoms, and patients cannot predict their prescription perfectly. This nests the simplified model in the main text, where doctors and patients do not observe private signals.

Note that in the most general setup, the patient may learn from the prescription he receives (as well as any additional messaging from the doctor) about the doctor's private signal η. Patients' and doctors' beliefs in equilibrium must be mutually consistent, meaning that patients update ϵ correctly based on the average of all η that may lead to the chosen prescription, and doctors in turn take this into account when making the optimal prescription choice. This is reminiscent of informed-expert or cheap-talk models.

Belief updating introduces some additional complexity to the model, but does not provide additional insights into the problem we are considering. We therefore assume that doctors cannot learn ϵ, and patients cannot learn η, although the joint distribution of the signals is known. This could be the case if preferences are too far apart, so that any communication about private signals is not credible and for example the doctor's prescription choice holds no additional information for the patient conditional on observed symptoms.

Doctor's Expected Utility

Doctors can prescribe simple treatment or severe treatment, or choose not to treat for malaria. In addition, we allow for the possibility that they may give the patient a choice between simple and severe treatment. This option avoids all gatekeeping costs; the only

choice the doctor makes is whether she offers the discount to the patient.

We assume that gatekeeping costs are linear in the utility loss the patient experiences from his treatment choice given the prescription, compared to his best possible treatment option. Given the unobservability of ϵ, patient preferences are uncertain from the perspective of the doctor (as well as the researcher), As a result, the doctor decides based on the distribution of patient beliefs she faces, $F\left(\pi(\gamma,\epsilon) \mid \gamma,\eta\right)$, not the actual type π. We will write $F(\pi \mid \gamma,\eta)$ for short and use $\hat{\pi}$ for doctor beliefs to distinguish the two where needed.

Table A1 describes the doctor's expected utility for different prescription choices and treatment conditions. Consider for example the doctor's expected utility EV_N in the Control from prescribing no treatment, as shown in Table A1, row (1). There is no utility from the treatment itself, and in addition, the doctor experiences expected gatekeeping costs

$$EV_N = -\,g\int_{L_P} U_L(\pi,P)dF(\pi \mid \gamma,\eta) - g\int_{H_P} U_H(\pi)dF(\pi \mid \gamma,\eta).$$

We assume that $F(\pi|\gamma_1,\eta)$ is first-order stochastically dominated (FOSD) by $F(\pi|\gamma_2,\eta)$ if $\gamma_1 < \gamma_2$. This implies that the patient has on average a stronger preference for treatment if observable malaria symptoms are stronger, all else equal, and the mass of patients shifts from lower subjective malaria probabilities π to higher ones. The FOSD condition on F means that the gatekeeping costs from not prescribing any treatment are weakly increasing (in absolute terms) in γ for each ϵ, because the patient's utility from simple and severe treatment is increasing in π.[2] The expected utility from prescribing severe treatment in the Control is in row (3). The gatekeeping cost is lower at any γ,η than from not prescribing anything, as it only affects those patients who would like to buy simple treatment, but buy nothing or severe treatment instead. Gatekeeping costs of prescribing severe are first increasing, then decreasing in π.

The expected utility from prescribing simple treatment in the control is given by row (5). The utility loss from gatekeeping increases in γ, because the expected gatekeeping cost of not prescribing severe rises as malaria symptoms worsen. Moreover, the gatekeeping costs for a simple prescription are always lower than no prescription.

Finally, row (8) shows the expected utility from offering the patient a menu. This option avoids all gatekeeping costs, and provides utilities V_H and V_L according to the probability that the patient chooses severe or simple treatment, respectively.

The doctor can decide whether or not she wants to offer the voucher when prescribing

[2]The composite function that is 0 on N, $gU_L\left(\pi,P\right)$ on L, and $gU_H\left(\pi\right)$ on H is weakly increasing, so its expectation is weakly increasing as γ increases.

simple malaria treatment. Doctor utility and gatekeeping costs are unchanged between the control and the doctor voucher treatment when the voucher is not used, per lines (1), (3), (5), and (8). This is because it is a weakly dominating strategy not to reveal the lower price of simple treatment in this situation. Thus, the patient's utility and beliefs are exactly the same as in the Control. By contrast, there *is* a difference between C and DV when offering simple treatment and the voucher is revealed (rows (6) and (9)). In these cases, utility in DV is the same as in PV. Rows (7) and (10) show the utility of offering simple, but not using the voucher in PV. This is the only instance where the doctor would incur a gatekeeping cost when offering the choice menu.

Finally, observe that gatekeeping costs are highest when no treatment is prescribed and malaria medications are subsidized (row (2)), and lowest (at zero) when giving the patient the choice between simple and severe treatment, as long as the voucher is not withheld when the patient knows about it (rows (8) and (9)).

Recall that the doctor's preferences characterize areas $\hat{N}$, $\hat{L}$ and $\hat{H}$ across the range of malaria probabilities π. While the patient's purchasing is probabilistic, at a given $\pi(\gamma, \eta)$ and price, the doctor's innate preferences (excluding gatekeeping costs) are fully described by the functions V_L and V_H.

Analyzing the Model

Comparing Doctor Voucher and Patient Voucher Treatments. Recall that *patients drive (marginal) demand* for treatment when the doctor prescribes (and patients purchase) more aggressive treatment than the doctor herself thinks is optimal. We say the *doctor drives demand* when the doctor leads patients to purchase more (powerful) treatment than patients find optimal.

Note first that gatekeeping costs increase unambiguously for all prescription choices except those that offer the patient simple treatment with the voucher when going from DV to PV, because patients learn that they are missing out on the discount. For no treatment, severe treatment, simple treatment without a voucher, or the choice menu without the voucher, the relative utility loss from being in PV over DV is identically given by

$$\begin{aligned} &-\int_{L_0} gU_L(\pi, 0)dF(\pi|\gamma, \eta) - \int_{H_0} gU_H(\pi)dF(\pi|\gamma, \eta) \\ &+\int_{L_P} gU_L(\pi, P)dF(\pi|\gamma, \eta) + \int_{H_P} gU_H(\pi)dF(\pi|\gamma, \eta) < 0 \end{aligned}$$

(see e.g. row (8) vs. (10)). By contrast, the utility from prescribing simple with the voucher or the choice menu with the voucher remains the same (see rows (6) and (9)). As a result,

any change in prescription behavior between DV and PV must involve a switch from one of the options *without* voucher to one of the option *with* the voucher. We refer to this as observation (1), which immediately establishes prediction (1), that voucher use will be higher in PV than DV whenever there are gatekeeping costs and doctors and patients have different preferences over the optimal prescription.

Next, we want to establish prediction (2): that an increase in the overall rate of malaria treatment in PV versus DV indicates patient-driven demand. By observation (1), such a change can only be driven by a doctor who prescribes no treatment in DV, but simple treatment (with voucher) in PV. Not prescribing any treatment in DV incurs higher expected gatekeeping costs than prescribing simple, and so it can only be preferred to simple treatment if the direct utility from simple treatment $V_L(\pi, 0)$ is negative. This means the doctor is in $\hat{N}$, and is made to treat in PV by the expected discontent of patients who want the simple treatment at the lower price.

Now we turn to prediction (3): that a higher rate of severe treatment in DV as compared to PV indicates doctor-driven demand. Marginal severe prescriptions in DV could either be from a doctor who prescribed (only) severe treatment, or who gave the patient a choice between simple and severe, but without revealing the voucher (the latter stems from observation (1) and the fact that more patients buy simple treatment in PV – this cannot occur if all of L_0 already purchased simple treatment in DV).

Giving a choice without revealing the voucher immediately indicates that $V_H(\hat{\pi}) > V_L(\hat{\pi}, 0)$, or else the doctor could have simply used the voucher to sell more simple treatment; that is, we are in $\hat{H}_0$. Similarly, a prescription of severe treatment (only) over giving a choice indicates a strong preference for severe treatment over simple treatment, since the doctor can compel patients in $L2$ to purchase, but at the cost of not selling simple to $L1$, and gatekeeping costs from both types of patients. In short, whenever we observe the switch from severe to simple, it comes from doctors who prefer severe over simple, but patients who prefer simple over severe. This leads to prediction (3).

Last, prediction (4) follows from the fact that all switches from no treatment to simple under patient-driven demand occur when $\hat{\pi} \in \hat{N}_0$, but switches from severe treatment to simple occur when $\hat{\pi} \in \hat{H}_0$.

Will Doctors Always Use Vouchers for Simple Treatment?

In our data, we observe patients in both PV and DV who purchase simple malaria treatment without a voucher. While this could be due to issues like doctor inattention, our model predicts that it is sometimes optimal for doctors to withhold vouchers. This can only be the case if the doctor feels compelled (by gatekeeping costs) to prescribe simple treatment, but

would actually rather not sell it, either because she prefers to sell more severe treatment ($\hat{H}_0$), or less treatment overall ($\hat{N}_0$). Concealing the voucher reduces patient demand for simple treatment. The doctor strikes a balance between gatekeeping costs (her strategy avoids gatekeeping costs for patients who buy simple at P) and prescribing her preferred treatment (her strategy ensures marginal patients who would only purchase ACTs when they are free will not take treatment). The utility from any prescription that involves simple treatment *without* a voucher shrinks from DV to PV, and doctors will substitute to an option that offers simple *with* the voucher. This leads to prediction (5):

Prediction (5) *If the doctor prefers not to sell simple treatment, she may choose to prescribe and sell it without a voucher to some patients in DV. From DV to PV, the rate of prescribing simple without a voucher will decrease.*

Thus, prescribing simple treatment without using an available voucher in DV can be another indicator of the presence of gatekeeping costs.

Doctors Who Only Value Clinic Profits. A general issue in interpreting prescription and purchasing behavior, and the motivation for our experimental design, is that doctor and patient preferences are not observed. This makes it difficult to compare C and DV: a doctor who changes her prescription from no to simple treatment from C to DV may do so because she preferred treatment all along, but was unable to sell it to the patient without the discount – or because her own preference changed based on the price change.

There is one exception, and this is the case of a doctor who intrinsically only values profits. This type of doctor has a fixed valuation of selling the patient severe vs. simple treatment, regardless of malaria probability or the price the patient pays: $V_H = V_H(\hat{\pi}) > V_L(\hat{\pi}, P) = V_L(\hat{\pi}, 0) = V_L$. The doctor's only restriction on malaria drug sales are patient preferences and gatekeeping costs – patients in N will not buy any treatment, and patients in $L1$ will buy simple but not severe treatment; moreover, patients in $L2$ will impose a gatekeeping cost on prescribing severe treatment. When comparing DV with C, the only change from the doctor's perspective is that the constraint on sales that arises from patients' willingness to pay for simple treatment is lifted. We have:

Prediction (6) *For a revenue-maximizing doctor, per-patient revenue should be higher in DV than in C.*

By contrast, the only difference when comparing DV with PV comes from the higher gatekeeping cost associated with prescribing severe treatment to $L2_0$ patients under PV. If simple treatment generates the highest revenue, voucher use and per-patient revenue should

be identical between both treatment arms. Otherwise, if severe is more profitable than simple, we have:

Prediction (7) *For a revenue-maximizing doctor who is affected by gatekeeping costs, per-patient revenue should be higher in DV than in PV.*

B Empirical Appendix

B.1 Additional Experimental Details

In addition to the doctor and patient voucher treatments, the experimental design included two other treatments designed to increase doctor and patient trust in RDTs. While accounting for these treatments has no impact on our main results, we describe them here in the interest of transparency.

Doctor Information (Across-Clinic Randomization). Half the clinics were randomly selected to receive the "Doctor Information" intervention. Clinics in this group received an enhanced refresher training that included the "basic information" referenced in the main text, plus an additional session on the diagnostic accuracy of RDTs. This training was informed by our qualitative scoping work, which indicated that doctors had low levels of trust in RDTs and thought the tests were only capable of diagnosing malaria when parasite concentrations in the blood were very high. The session began by reviewing the sensitivity rate of the brand/make of RDTs used in clinics, per the most recent WHO quality assurance testing (**?**). The trainer then introduced a validation study of the same brand/make of RDT conducted in Mali by a team of Malian researchers (see **?**). The trainees were shown a video in which one of the study's principal investigators (a Malian M.D.-Ph.D.) described the results of the study. Key messages were: (1) Over 99 percent of true malaria blood samples tested RDT positive (the sensitivity of the test), (2) 73 percent of malaria negative blood samples tested negative (the specificity of the test) and (3) RDT sensitivity remained very high (89-92 percent) at low parasite loads (1-100 parasites/μL). The session closed by reviewing several other studies from sub-Saharan Africa and discussing why it is medically appropriate to refrain from prescribing ACTs to "suspect" malaria cases with a negative RDT.

B.2 Doctor Surveys

In addition to the data analyzed in the main sections of this paper, we also collected data from health care providers at two points in time. First, we administered a post-training

survey to doctors and other care providers who attended the refresher trainings that took place at the beginning of the study. The post-training survey tested providers' knowledge of topics covered in the basic training (e.g. recommended malaria treatments, symptoms of severe malaria) and topics only covered in the extended "Doctor Information" treatment (e.g. sensitivity and specificity of RDTs). We also selected up to three care providers for a post-intervention endline survey.[3] In addition to topics covered in the post-training survey, the endline asked caregivers about perceived patient knowledge, demand for drugs, and personal preferences regarding malaria diagnosis and treatment.

B.3 Analysis Sample

In total, our enumerators logged 2753 clinic visits during the clinic survey. Our analysis sample includes patients/respondents who met the following criteria: consented to the survey (2 observations excluded), the patient was present at the clinic (0 observations excluded), the clinic visit was for an acute illness (neither preventive care nor follow-up visit for earlier treatment, 442 observations excluded), and the patient had at least one of the following symptoms: fever; chills and/or excessive sweating; nausea, vomiting or diarrhea; poor appetite, unwilling to eat or to breastfeed; headache; cough; weakness, fatigue, or reduced consciousness (31 observations excluded). In addition, we only include in the analysis those observations that satisfy the following: complete clinic intake interview (61 observations excluded), the name of the respondent from the intake interview was confirmed in the exit interview (5 observations excluded), and the respondent was available to continue with the clinic exit interview (157 observations excluded). This leaves us with a final clinic survey sample of N=2055.

B.4 Variable Construction

Administrative Records. To determine which patients received and redeemed a voucher, we asked intervention officers to keep notes on voucher delivery and redemption. When a patient received a coupon signed by the doctor, they went to the pharmacy with two copies of the coupon (original and copy). The pharmacist priced the prescribed ACT on both parts and countersigned each coupon, then gave the patient the ACT and the part of the coupon marked "copy". After completing the purchase of the other medicines prescribed in her prescription, the patient delivered the coupon to the intervention officer. At this stage,

[3]We always interviewed the head doctor at the CSCom. Subject to the number and type of staff at a CSCom we also randomly selected one other doctor and one other care provider (including nurses, health technicians, and midwives) for interview.

the intervention officer took notes of name and age of the patient, price of ACT, and the presence of signatures (to check validity). We merge these notes with the in-clinic survey by using name, age of the patient, clinic visit date, and name of the clinic.

- *Used voucher* - this variable is constructed by using records of vouchers redemption, and is equal to one if a patient or doctor voucher was redeemed.

Selected Clinic Survey Variables. To construct malaria treatment variables, we recorded medications reported by individuals after the consultation at the clinic (during the exit interview). The respondent was asked to report all the medicines and equipment that were prescribed; we included a detailed list of medications (generics and brands) and equipment commonly prescribed at the clinics. We also allowed the enumerator to describe an item if it was not included in the list. We recoded items included in these descriptions and constructed dummy variables that indicate a medication or item used in a malaria treatment. In addition, we asked if the items were purchased, and which were the main reasons to not buy the item. We recoded the answers "free, donated" as "purchased".

- *Respondent Suspects Illness is Malaria (Pre-Consultation)* – equal to one if the respondent answered "malaria (uncomplicated, severe or unspecified)" to the question "What illness do you think you/the patient suffer(s) from?"

- *Duration of Illness in Days* – based on survey question "For how many days have you/has the patient had the illness?". Top-coded at the 99th percentile.

- *Received Injection or IV* – equal to one if the respondent paid for one or more items that indicate the use of an injection or IV. This includes: fees paid to health workers to receive an injection, IV, perfusion set (épicrânien, epicranni), catheter, fluids via an IV infusion, perfusion, syringe, injection/perfusion, Ringer's lactate solution, glucose serum, and saline serum.

- *Simple Malaria Treatment (Prescribed/Purchased)* – this variable was constructed from individuals' reports of what medications were prescribed. First, we code the variable to one if the individual declares any of the following: ACT (brand/type not specified), specified ACT (Artekin, Artefan, Coartem, ACT for adolescents, ACT for children, ACT for adults, Malacur, Combiart, or Laritem), artemether+lumefantrine (we also set this variable equal to one if a voucher was used according to administrative records), amodiaquine (including Amoquin, Camoquin, Novaquin), artemether tablets (if tablet/injection was unspecified we assume tablet if 'received injection or IV' was equal to zero), artesunate tablets (if tablet/injection was unspecified we assume tablet

if 'received injection or IV' was equal to zero), quinine tablets (if tablet/injection was unspecified we assume tablet if 'received injection or IV' was equal to zero), sulfadoxine/pyrimethamine (we also checked for the following combinations but all the observations were zero: artesunate+amodiaquine, artemether+amodiaquine, artemether+SP, artesunate+SP). Finally, this variable was set to zero if a severe malaria treatment was prescribed/purchased.

- *Severe Malaria Treatment (Prescribed/Purchased)* - dummy equal to one if an individual reports: quinine injection (if injection/tablet was unspecified we assume injection if 'received injection or IV' was equal to one), artemether injection (if injection/tablet was unspecified we assume injection if 'received injection or IV' was equal to one), or artesunate injection (if injection/tablet was unspecified we assume injection if 'received injection or IV' was equal to one). In addition, we set this variable to one if a monotherapy/quinine tablets and an ACT treatment were prescribed/purchased, as this is consistent with delivering monotherapies via suppository. Here, montotherapy/quinine includes quinine/artemether/artesunate, while ACT treatment is a dummy variable equal to one if an individual reported any of the following: unspecified ACT, specified ACT (constructed as above), artemether+lumefantrine. We also checked for artesunate+amodiaquine, artemether+amodiaquine, artesunate+SP, and artemether+SP, but all the observations were zero.

- *No Malaria Treatment (Prescribed/Purchased)* – is constructed as a dummy variable equal to one if an individual did not report a malaria treatment (simple or severe).

- *Expected Match, Malaria Positive (Prescribed/Purchased)* – This variable is equal to the predicted malaria risk (explained in main text) times a dummy variable equal to one if an individual purchased or was prescribed a severe or simple malaria treatment.

- *Expected Match, Malaria Negative (Prescribed/Purchased)* – This variable is equal to the predicted probability of no malaria (1-predicted malaria risk) times a dummy variable equal to one if an individual did not purchase or was not prescribed a severe or simple malaria treatment.

- *Overall Match (Prescribed/Purchased)* – is the sum of the two previous variables.

- *Simple/Severe Malaria Treatment and Used Voucher* – equal to one if the patient purchased a simple/severe malaria treatment and a voucher was used (according to administrative records), zero otherwise.

- *Simple/Severe Malaria Treatment, No Voucher* – equal to one if the patient purchased a simple/severe malaria treatment and a voucher was not used (according to administrative records), zero otherwise.

- *Purchased Antibiotics* – equal to one if a respondent reported the purchase of antibiotics. We included: Amoxicillin, Amoxicilline+Cla, Ampicilline, Cefadroxil, Cefixime, Ceftriaxone, Ciprofloxacine, Clamoxyl, Cotrimoxazol (Trimoprim), Diazole, Erycin, Erythromycin, Flagyl, Gentamycin, Metronidazole, Oracefal, Oxacilline, Penicillin, Synozole, and unspecified antibiotics. We also checked for Amodix, Amoxitem, Augmentine, Azithromycin, Bactox, Binozyt, Cedrox, Oleandomycine, Uclaprim, and Unasyn but all the observations were zero.

- *Patient Referred to Hospital or Placed Under Observation* – equal to one if the respondent answered "yes" to the question "Were you/was the patient placed under observation at the CSCom?" or "Were you/was the patient sent to a CSRef or hospital?".

- *Total Cost of Treatment (CFA)* - individuals were asked to report what total price they paid for the consultation and all treatments. We set this value equal to zero if the patient had no record of prescribed/purchased treatments or a bill, and we top-coded at the 99th percentile.

- *Clinic Revenues* – equal to total cost of treatment plus the amount reimbursed (based on administrative data) if an ACT voucher was redeemed.

Selected Home Survey Variables.

- *Household Size* – is the total number of household members, the sum of two questions "How many members has your household aged 14 years or younger?" and "How many members has your household aged 15 years or older?"

- *Share Household Under 15* – members aged 14 years or younger divided by total household size.

- *Share Household Members Working* – based on survey question "How many members of your household have a permanent job or own a steady business?" divided by total household size.

- *Monthly Income Per Capita* – each respondent was asked to estimate the total monthly income of her household, then we divided this amount by the household size. Top-coded at the 99th percentile.

- *Rental Value of Home* – based on survey question "How much rent does your household pay?" or "Could you estimate the rent you would pay if you rented this dwelling?" if the household owned the dwelling. We allowed for different rent periods, so we adjusted the amount to construct a monthly measure. The variable was divided by 12 if it was expressed in annual terms, or multiplied by 52/12 if it was weekly variable. Top-coded at the 99th percentile.

- *Mosquito Nets Per Capita* – based on survey question "How many mosquito nets do the people in your household own?" divided by total household size.

- *Taking All Purchased ACTs* – During the home survey, we asked if patients were taking the medications purchased at the clinic "Is the patient/Are you currently taking 'name of medication'?". This question was only recorded for medications coded as purchased during the clinic survey (a small share of medications given at a zero price were not coded as purchased due to enumerator error; this variable is missing for patients whose ACTs were coded this way). We constructed dummy variables equal to one if the patient was taking a purchased medication. To determine if a patient was currently taking an ACT, we created a dummy equal to one if a patient was taking at least one of the following medications (conditional on the purchase of an ACT): artemether+lumefantrine (tablet), Artefan, Artekin, Coartem, ACT for adolescents, ACT for adults, ACT for children, Malacur, Combiart, Laritem, or unspecified ACT.

- *Taking Purchased ACT for Simple Malaria* – constructed the same way as the previous variable but conditional on the purchase of a simple malaria treatment.

- *Positive RDT* – based on the enumerator's report of the home-based RDT; "What was the RDT test result?" Equal to one if positive, zero if negative, missing if not taken or inconclusive.

Health Worker Post-Intervention Survey.

- *Malaria Prevalence: General Population* – this variable is the answer to the question "Consider an average day in November. In the general population (including those who do not visit a clinic and do not feel sick), out of 1000 people, how many have malaria on that day?" divided by 1000.

- *Malaria Prevalence: Clinic Patients* – we included the question "Assume you have 100 patients during this period. Among them, how many are children under 5?", then "Among those X children, how many have malaria?" and "Among those (100-X)

patients 5 and above, how many have malaria?". This variable is the sum of the last two questions divided by 100.

- *Feels Pressure from Patients to Prescribe Unnecessary Medication* – this variable is equal to one if the health worker said yes to the question "Do you ever feel pressure from patients to prescribe certain medicines when you think they are not necessary?"

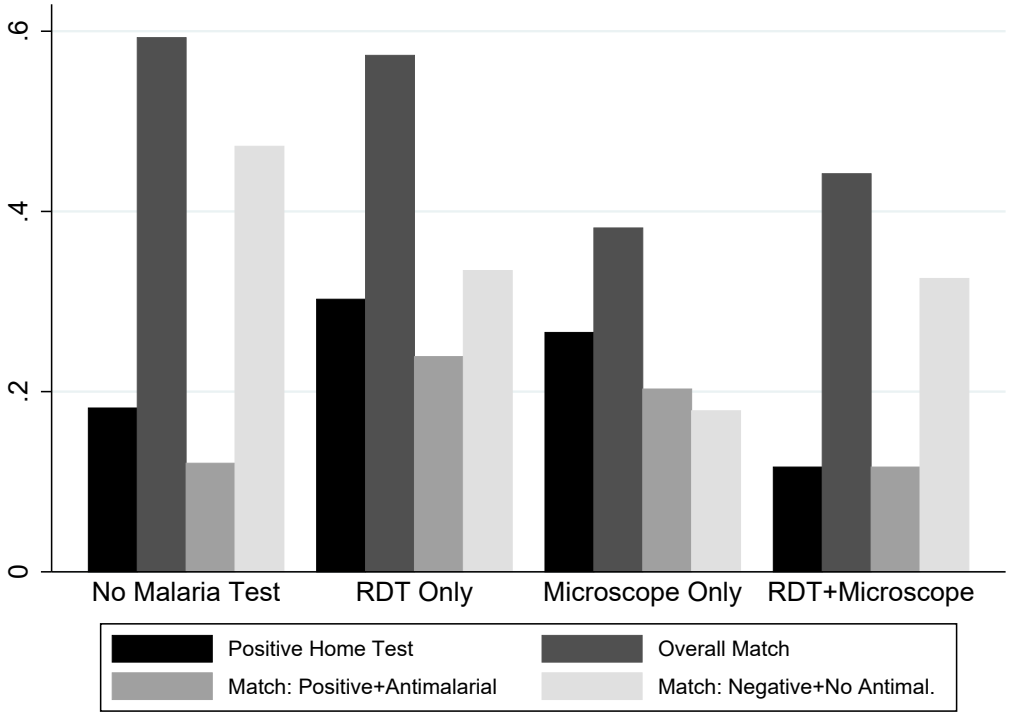
Appendix Figures and Tables

Table A1: Doctor's Expected Utility from Different Prescription Choices

	Utility from treatment use	Utility loss from gatekeeping cost
No treatment		
(1) C & DV	0	$-g\int_{L_P} U_l(\pi,P)dF(\pi\|\gamma,\eta) - g\int_{H_P} U_v(\pi)dF(\pi\|\gamma,\eta)$
(2) PV	0	$-g\int_{L_0} U_l(\pi,0)dF(\pi\|\gamma,\eta) - g\int_{H_0} U_v(\pi)dF(\pi\|\gamma,\eta)$
Severe treatment		
(3) C & DV	$P(\pi \in L2_P \cup H_P)V_v(\hat{\pi})$	$-g\int_{L1_P} U_l(\pi,P)dF(\pi\|\gamma,\eta) - g\int_{L2_P} [U_l(\pi,P) - U_v(\pi)]\, dF(\pi\|\gamma,\eta)$
(4) PV	$P(\pi \in L2_0 \cup H_0)V_v(\hat{\pi})$	$-g\int_{L1_0} U_l(\pi,0)dF(\pi\|\gamma,\eta) - g\int_{L2_0} [U_l(\pi,0) - U_v(\pi)]\, dF(\pi\|\gamma,\eta)$
Simple treatment		
(5) C & (DV/no voucher)	$P(\pi \in L_P \cup H_P)V_l(\hat{\pi},P)$	$-g\int_{H_P} [U_v(\pi) - U_l(\pi,P)]\, dF(\pi\|\gamma,\eta)$
(6) (PV & DV)/voucher	$P(\pi \in L_0 \cup H_0)V_l(\hat{\pi},0)$	$-g\int_{H_0} [U_v(\pi) - U_l(\pi,0)]\, dF(\pi\|\gamma,\eta)$
(7) PV/no voucher	$P(\pi \in L_P \cup H_P)V_l(\hat{\pi},P)$	$-g\int_{L1_0\setminus L1_P} U_l(\pi,0)dF(\pi\|\gamma,\eta) - g\int_{L1_P\cup L2_0} [U_l(\pi,0) - U_l(\pi,P)]\, dF(\pi\|\gamma,\eta)$ $-g\int_{H_0} [U_v(\pi) - U_l(\pi,P)]\, dF(\pi\|\gamma,\eta)$
Patient choice between simple and severe treatment		
(8) C & (DV/no voucher)	$P(\pi \in L_P)V_l(\hat{\pi},P) + P(\pi \in H_P)V_v(\hat{\pi})$	0
(9) C & (PV & DV/voucher)	$P(\pi \in L_0)V_l(\hat{\pi},0) + P(\pi \in H_0)V_v(\hat{\pi})$	0
(10) PV/no voucher	$P(\pi \in L_P)V_l(\hat{\pi},P) + P(\pi \in H_P)V_v(\hat{\pi})$	$-g\int_{L_0} U_l(\pi,0)dF(\pi\|\gamma,\eta)$ $+g\int_{L_P} U_l(\pi,P)dF(\pi\|\gamma,\eta) + g\int_{H_P\setminus H_0} U_v(\pi)dF(\pi\|\gamma,\eta)$

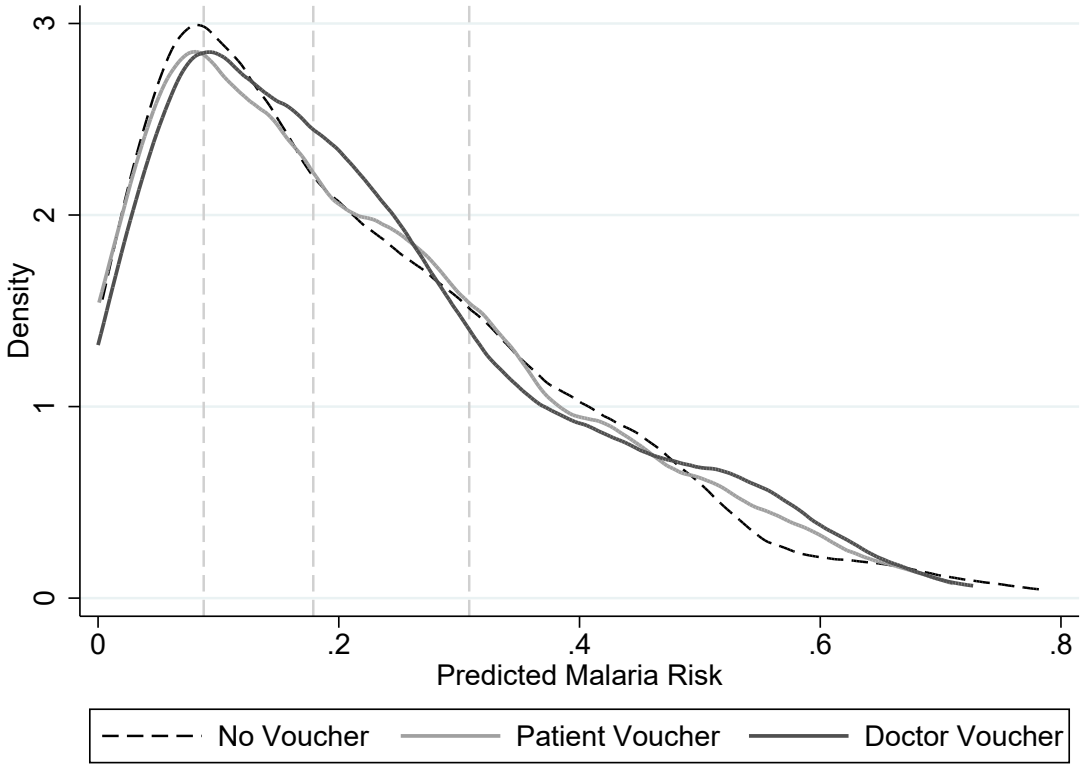
Notes: C denotes control, DV denotes voucher given to doctor, PV denotes voucher given to patient. "No voucher" and "voucher" indicate if the doctor offers the subsidy when prescribing simple treatment.

Figure B1: Misallocation of Treatment by Clinic Malaria Test Status (Home Tested Subsample)



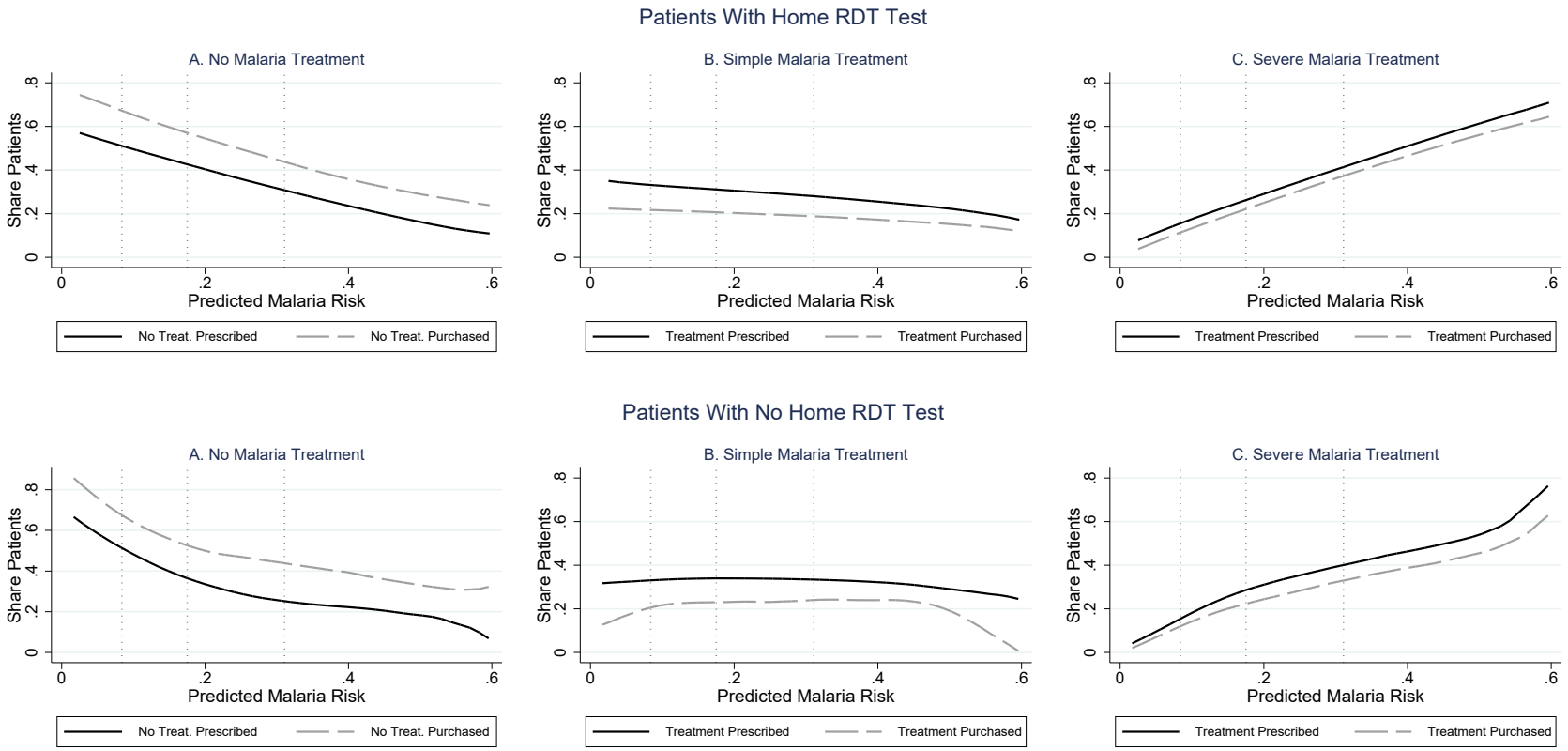
Notes: Sample limited to 1,070 patients who had a valid home-based RDT result. 506 patients received no malaria test, 314 received an RDT only, 207 received microscope test only, and 43 received both types of tests. The black bar graphs the share of each subgroup that received a positive home-based RDT result. The dark grey bar graphs the share of the sample that either received a positive home-based test and an antimalarial prescription or had a negative test and no antimalarial prescription. The medium grey bar graphs the share of each group that had a positive home test and an antimalarial prescription; the light grey bar graphs the share of each group that had a negative test and no antimalarial prescription.

Figure B2: Distribution of Predicted Malaria Risk by Treatment Group



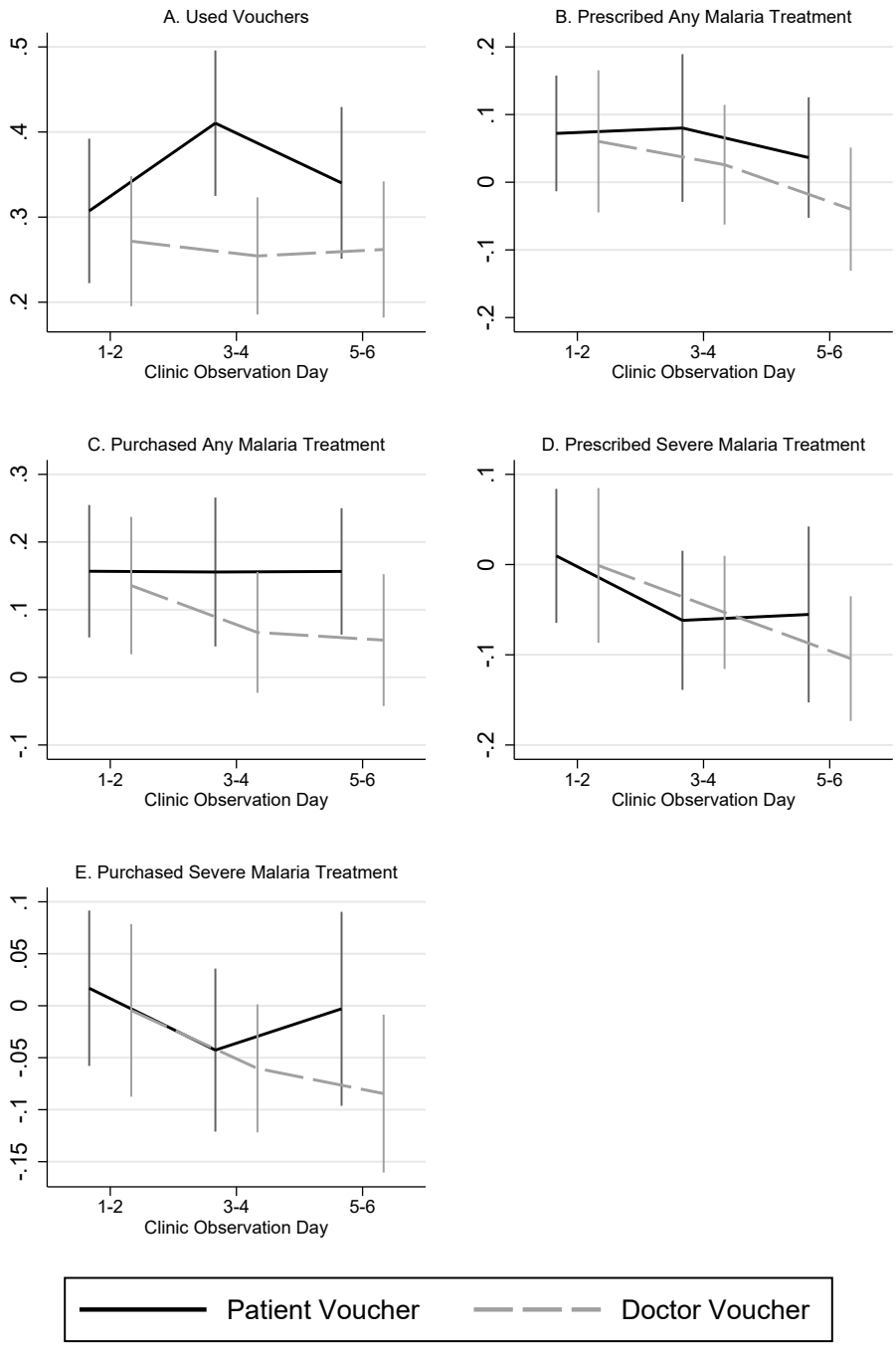
Notes: Kernel density estimates. Vertical dashed lines indicate 25th, 50th, and 75th percentiles of overall distribution respectively.

Figure B3: Treatment Outcomes by Predicted Malaria Risk in Control Group – By Home RDT Test Status



Notes: Results from local linear regressions. Regressions are run on the full sample, but graphs omit results for top and bottom 2.5 percent of malaria risk distribution to avoid influence of outliers. Vertical dashed lines indicate 25th, 50th, and 75th percentiles of predicted malaria risk respectively.

Figure B4: Voucher Treatment Effects by Clinic Observation Day



Notes: Graphs show point estimates of a linear regression model where PV and DV dummies are interacted with dummies for patient observation day bins, along with 95 percent confidence intervals. Robust standard errors clustered at the clinic level in parentheses. All regressions control for clinic visit date fixed effects and dummies for days 1-2 and days 3-4. We use double selection lasso to choose additional controls. See notes to Table 3 in the main manuscript for a list of potential controls.

Table B1: Overview of Clinic Staffing

	(1) Mean	(2) SD	(3) Min	(4) Max	(5) N
Panel A. Number Staff Who Can Write Malaria Prescriptions					
Doctors	1.644	0.663	1	4	59
Medical trainees	4.542	3.793	0	20	59
Other staff	4.949	3.350	0	19	59
Panel B. Number Staff Who Can Perform an RDT Test					
Doctors	1.475	0.774	0	4	59
Medical trainees	3.932	3.624	0	20	59
Lab technician	1.000	0.910	0	3	59
Other staff	4.458	3.530	0	19	59
Panel C. Number Staff Who Can Perform a Microscopy Test					
Doctors	0.119	0.458	0	2	59
Medical trainees	0.237	1.072	0	6	59
Lab technician	1.237	0.878	0	3	59
Other staff	0.407	1.631	0	8	59
Panel D. Pharmacy					
Doctor in staff during pharmacy hours	0.914	0.284	0	1	35

Notes: Data from clinics census. Rapid Diagnostic Test (RDT) is a cassette-like device that measures a patient's true malaria status by using a small amount of blood, are easy to interpret; the microscopy test requires a microscope managed by well-trained personnel. Medical trainees include interns doing medical training, out of hours providers or non-salaried doctors. Panel D indicates a dummy variable that takes value 1 if a doctor in staff is present during pharmacy hours on weekdays (including a difference of at most 2 hs.)

Table B2: Health Worker Beliefs from Post-Intervention Survey

	(1) Mean	(2) SD	(3) N
Malaria Prevalence: General Population	0.350	0.274	143
Malaria Prevalence: CSCom Patients	0.482	0.194	143
Feels Pressure from Patients to Prescribe Unnecessary Medication	0.566	0.497	143
Feels Pressure: Antimalarials	0.519	0.503	81
Feels Pressure: Pain Killers	0.333	0.474	81
Feels Pressure: Antibiotics	0.210	0.410	81
Feels Pressure: Other Medicines	0.247	0.434	81

Notes: Results from post-intervention health worker survey. Sample includes doctors, nurses, and health technicians. A health worker is coded as feeling pressure to prescribe if s/he answers yes to the question: Do you ever feel pressure from patients to prescribe certain medicines when you think they are not necessary? Doctors answering yes were then asked to specify which medications. Antimalarial also includes quinine; pain killer includes analgesic, anti inflammatory, and sedatative; antibiotic includes unspecified antibiotics and ciprofloxacin.

Table B3: Impacts of Patient Information on Malaria Treatment Outcomes

	(1)	(2)	(3)	(4)
	Any Malaria Treatment		Severe Malaria Treatment	
	Prescribed	Purchased	Prescribed	Purchased
Patient Information	0.016	-0.011	0.046	0.022
	(0.036)	(0.037)	(0.033)	(0.033)
Patient Voucher	0.094**	0.18***	-0.010	-0.00047
	(0.038)	(0.038)	(0.029)	(0.029)
Doctor Voucher	0.026	0.085**	-0.016	-0.025
	(0.029)	(0.034)	(0.029)	(0.028)
Patient Voucher × Patient Information	-0.074	-0.058	-0.052	-0.026
	(0.052)	(0.055)	(0.044)	(0.046)
Doctor Voucher × Patient Information	-0.023	-0.000035	-0.075*	-0.052
	(0.044)	(0.047)	(0.041)	(0.042)
Mean (No PI, No Voucher)	0.603	0.462	0.279	0.246
N	2053	2053	2053	2053

Notes: Robust standard errors clustered at the clinic level in parentheses. All regressions control for clinic visit date fixed effects. We use double selection lasso to choose additional controls. See notes to Table 3 for a list of potential controls. *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels respectively.

Table B4: Impacts of Doctor Information on Malaria Treatment Outcomes

	(1)	(2)	(3)	(4)
	Any Malaria Treatment		Severe Malaria Treatment	
	Prescribed	Purchased	Prescribed	Purchased
Doctor Information	-0.081	-0.033	-0.011	-0.0068
	(0.060)	(0.055)	(0.043)	(0.043)
Patient Voucher	0.041	0.13***	-0.030	-0.014
	(0.036)	(0.041)	(0.029)	(0.031)
Doctor Voucher	-0.00026	0.083**	-0.057*	-0.059**
	(0.031)	(0.036)	(0.033)	(0.026)
Patient Voucher × Doctor Information	0.040	0.045	-0.0082	0.0028
	(0.058)	(0.059)	(0.047)	(0.048)
Doctor Voucher × Doctor Information	0.033	0.0045	0.0075	0.017
	(0.053)	(0.055)	(0.045)	(0.040)
Mean (No DI, No Voucher)	0.645	0.461	0.296	0.246
N	2053	2053	2053	2053

Notes: Robust standard errors clustered at the clinic level in parentheses. All regressions control for clinic visit date fixed effects. We use double selection lasso to choose additional controls. See notes to Table 3 for a list of potential controls. *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels respectively.

Table B5: Selection into Analysis Samples by Treatment

	(1)	(2)	(3)	(4)	(5)	(6)
		Regression Coefficients		P-Values		
	Control Mean	Patient Voucher	Doctor Voucher	Joint Test PV=DV	Joint Test PV=DV=0	N
A. Whole Sample						
Took Home Survey	0.734	-0.028	-0.017	0.716	0.505	2055
	[0.442]	(0.025)	(0.026)			
Took Home-Based RDT	0.551	-0.020	-0.006	0.640	0.781	2055
	[0.498]	(0.029)	(0.030)			
B. Selected for Home Survey						
Took Home Survey	0.860	-0.012	0.006	0.417	0.706	1735
	[0.347]	(0.020)	(0.021)			
Took Home-Based RDT	0.646	-0.010	0.007	0.554	0.834	1735
	[0.479]	(0.030)	(0.032)			
C. Took Home Survey						
Took Home-Based RDT	0.751	-0.004	0.003	0.800	0.968	1495
	[0.433]	(0.031)	(0.032)			

Notes: Robust standard errors clustered at the clinic level in parentheses. All regressions include clinic visit date fixed effects. *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels respectively.

Table B6: Selection Into Home Survey and RDT Consent

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Whole Sample			Selected Home Survey			Took Home Survey		
	Mean: Not Selected	Diff: Selected	N	Mean: Survey Not Taken	Diff: Took Survey	N	Mean: Took RDT	Diff: Refused RDT	N
A. Patient Characteristics									
Number of symptoms	3.306	0.255	2055	3.483	0.090	1735	3.697	-0.556***	1495
	[1.628]	(0.158)		[1.592]	(0.120)		[1.573]	(0.095)	
Fever	0.797	0.023	2055	0.838	-0.021	1735	0.833	-0.073**	1495
	[0.403]	(0.031)		[0.370]	(0.027)		[0.373]	(0.029)	
Chills or Excessive Sweating	0.197	0.083**	2055	0.250	0.034	1735	0.298	-0.061*	1495
	[0.398]	(0.034)		[0.434]	(0.030)		[0.457]	(0.035)	
Nausea, Vomiting, or Diarrhea	0.484	0.005	2055	0.429	0.070*	1735	0.515	-0.074*	1495
	[0.501]	(0.037)		[0.496]	(0.037)		[0.500]	(0.037)	
Poor Appetite	0.444	0.038	2055	0.471	0.013	1735	0.495	-0.050	1495
	[0.498]	(0.037)		[0.500]	(0.038)		[0.500]	(0.033)	
Headache	0.584	0.038	2055	0.579	0.050	1735	0.660	-0.141***	1495
	[0.494]	(0.048)		[0.495]	(0.033)		[0.474]	(0.039)	
Cough	0.350	0.028	2055	0.425	-0.055	1735	0.380	-0.043	1495
	[0.478]	(0.028)		[0.495]	(0.038)		[0.485]	(0.029)	
Weakness/Fatigue	0.450	0.041	2055	0.492	-0.001	1735	0.516	-0.114***	1495
	[0.498]	(0.037)		[0.501]	(0.043)		[0.500]	(0.037)	
Duration of Illness in Days	4.094	0.272	2055	4.446	-0.093	1735	4.345	0.033	1495
	[3.662]	(0.302)		[4.583]	(0.310)		[4.699]	(0.369)	
Age	15.884	1.754*	2055	16.847	0.917	1735	18.526	-3.419***	1495
	[14.492]	(0.882)		[15.692]	(0.906)		[16.241]	(1.216)	
Patient Under 5 Years Old	0.325	-0.040	2055	0.287	-0.003	1735	0.246	0.174***	1495
	[0.469]	(0.026)		[0.454]	(0.029)		[0.431]	(0.035)	
Male (Patient)	0.434	-0.014	2055	0.404	0.019	1735	0.408	0.067*	1495
	[0.496]	(0.027)		[0.492]	(0.031)		[0.492]	(0.035)	
Patient is Pregnant	0.122	-0.021	1139	0.120	-0.022	967	0.103	-0.021	834
	[0.328]	(0.022)		[0.327]	(0.029)		[0.304]	(0.025)	
Predicted Malaria Probability	0.205	0.013	2055	0.191	0.031***	1735	0.235	-0.057***	1495
	[0.164]	(0.014)		[0.147]	(0.011)		[0.164]	(0.010)	
Purchased Malaria Treatment	0.522	0.031	2053	0.512	0.047	1735	0.577	-0.075*	1495
	[0.500]	(0.037)		[0.501]	(0.037)		[0.494]	(0.039)	
B. Household Characteristics									
Patient Answered Clinic Survey	0.466	0.006	2055	0.496	-0.028	1735	0.496	-0.123***	1495
	[0.500]	(0.034)		[0.501]	(0.032)		[0.500]	(0.031)	
Male	0.269	0.012	2055	0.237	0.050	1735	0.286	0.009	1495
	[0.444]	(0.029)		[0.426]	(0.031)		[0.452]	(0.034)	
Bambara	0.300	0.102***	2053	0.392	0.012	1733	0.412	-0.040	1493
	[0.459]	(0.028)		[0.489]	(0.030)		[0.492]	(0.035)	
Speaks French	0.491	0.030	2055	0.521	0.000	1735	0.528	-0.032	1495
	[0.501]	(0.038)		[0.501]	(0.031)		[0.499]	(0.038)	
Literate (in French)	0.234	0.026	2055	0.321	-0.070**	1735	0.247	0.017	1495
	[0.424]	(0.026)		[0.468]	(0.027)		[0.431]	(0.035)	
Primary School or Less	0.475	-0.030	2055	0.433	0.013	1735	0.447	0.001	1495
	[0.500]	(0.036)		[0.497]	(0.027)		[0.497]	(0.037)	
Household Size^{+}							10.638	0.173	1491
							[8.192]	(0.669)	
Share HH Under 15^{+}							0.417	0.015	1485
							[0.191]	(0.016)	
Share HH Members Working^{+}							0.252	0.020	1485
							[0.188]	(0.014)	
Monthly income per capita^{+}							19000.000	4917.444**	1432
							[21000.000]	(1963.610)	
Rental Value of Home^{+}							57000.000	21000.000***	1469
							[77000.000]	(6884.989)	
Mosquito Nets Per Capita^{+}							0.481	0.018	1482
							[0.310]	(0.026)	

Notes: Robust standard errors clustered at the clinic level in parentheses. $^{+}$ indicates that variable was recorded in the home survey only. Variables measured in CFA and duration of illness top-coded at the 99th percentile. CFA610 ≈ USD1. *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels respectively.

Table B7: Predicting RDT Positivity With Observables

	(1) RDT Positive
Fever	0.442***
	(0.170)
Chills or Excessive Sweating	0.198*
	(0.105)
Nausea, Vomiting, or Diarrhea	0.382***
	(0.0955)
Reduced Appetite	0.00968
	(0.0987)
Headache	0.238**
	(0.120)
Cough	-0.185**
	(0.0794)
Weakness, Fatigue, or Reduced Consciousness	0.125
	(0.0979)
Duration of Illness in Days	-0.0189**
	(0.00904)
Age Patient	-0.00438
	(0.00535)
Patient Under 5 Years Old	-1.473***
	(0.236)
Under 5 × Age	0.266***
	(0.0988)
Patient is Male	1.030**
	(0.414)
Patient is Pregnant	-0.357*
	(0.201)
Ethnic group: Bambara	0.153*
	(0.0865)
Respondent Speaks French	-0.219
	(0.134)
Respondent is Literate in French	-0.454***
	(0.145)
Respondent Has Primary Education or Less	-0.123
	(0.119)
Patient Answered Clinic Survey	-0.383**
	(0.165)
Pseudo R-Squared	0.145
N	1126

Notes: Robust standard errors clustered at the clinic level in parentheses. Respondent refers to individual who answered clinic survey. ***, **, and * indicate significance at the 1, 5, and 10 percent significance levels respectively.

Table B8: Impacts on Malaria Treatment Outcomes, No Additional Controls

	(1)	(2)	(3)	(4)	(5)
		Any Malaria Treatment		Severe Malaria Treatment	
	Used Voucher	Prescribed	Purchased	Prescribed	Purchased
β_P: Patient Voucher	0.35***	0.067**	0.15***	-0.033*	-0.011
	(0.031)	(0.027)	(0.031)	(0.019)	(0.021)
β_D: Doctor Voucher	0.27***	0.023	0.092***	-0.058**	-0.051**
	(0.025)	(0.026)	(0.027)	(0.023)	(0.020)
P-values and theory-driven tests					
$\beta_P = \beta_D$	0.015**	0.067*	0.027**	0.369	0.104
Test for mechanism:	GC	PD	PD	DD	DD
Significant evidence of mechanism:	Yes	Yes	Yes	No	No
Mean (Control)	0.000	0.616	0.461	0.303	0.255
N	2055	2053	2053	2053	2053

Notes: Robust standard errors clustered at the clinic level in parentheses. All regressions control for clinic visit date fixed effects. GC, PD, and DD indicate tests of gatekeeping costs, patient-driven, and doctor-driven demand respectively. *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels respectively.

Table B9: Impacts on Malaria Treatment Outcomes - Heterogeneity by Predicted Malaria Risk, No Additional Controls

	(1)	(2)	(3)	(4)	(5)
		Any Malaria Treatment		Severe Malaria Treatment	
	Used Voucher	Prescribed	Purchased	Prescribed	Purchased
δ_{PH}: Patient Voucher × High Risk	0.34***	0.038	0.12***	-0.056*	-0.021
	(0.041)	(0.037)	(0.040)	(0.033)	(0.033)
δ_{DH}: Doctor Voucher × High Risk	0.33***	0.029	0.088**	-0.13***	-0.12***
	(0.039)	(0.033)	(0.037)	(0.034)	(0.031)
δ_{PL}: Patient Voucher × Low Risk	0.36***	0.095**	0.18***	-0.013	-0.0063
	(0.042)	(0.038)	(0.043)	(0.026)	(0.027)
δ_{DL}: Doctor Voucher × Low Risk	0.21***	0.0067	0.087**	0.00089	0.0096
	(0.032)	(0.040)	(0.036)	(0.030)	(0.025)
θ: High Malaria Risk	0.0078	0.26***	0.26***	0.28***	0.26***
	(0.028)	(0.041)	(0.042)	(0.038)	(0.036)
P-values and theory-driven tests					
$\delta_{PH} = \delta_{DH}$	0.719	0.810	0.400	0.085*	0.008***
Test for mechanism:	GC/DD	–	–	DD	DD
Significant evidence of mechanism:	No	–	–	No	No
$\delta_{PL} = \delta_{DL}$	0.000***	0.021**	0.011**	0.670	0.594
Test for mechanism:	GC/PD	PD	PD	–	–
Significant evidence of mechanism:	Yes	Yes	Yes	–	–
Mean (Control, Low Risk)	0.000	0.486	0.329	0.154	0.116
N	2055	2053	2053	2053	2053

Notes: Robust standard errors clustered at the clinic level in parentheses. All regressions control for clinic visit date fixed effects. Standard errors based GC, PD, and DD indicate tests of gatekeeping costs, patient-driven, and doctor-driven demand respectively. *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels respectively.

Table B10: Impacts on Malaria Treatment Outcomes

	(1)	(2)	(3)	(4)	(5)
		Any Malaria Treatment		Severe Malaria Treatment	
	Used Voucher	Prescribed	Purchased	Prescribed	Purchased
β_P: Patient Voucher	0.35***	0.060**	0.14***	-0.038**	-0.017
	(0.030)	(0.026)	(0.029)	(0.019)	(0.021)
β_D: Doctor Voucher	0.26***	0.016	0.080***	-0.059***	-0.054***
	(0.024)	(0.025)	(0.026)	(0.022)	(0.020)
P-values and theory-driven tests					
$\beta_P = \beta_D$	0.011**	0.059*	0.019**	0.419	0.112
Test for mechanism:	GC	PD	PD	DD	DD
Significant evidence of mechanism:	Yes	Yes	Yes	No	No
Mean (Control)	0.000	0.616	0.461	0.303	0.255
N	2055	2053	2053	2053	2053

Notes: Robust standard errors clustered at the clinic level in parentheses. All regressions control for clinic visit date fixed effects. Controls include number of symptoms, symptom dummies, duration of illness (topcoded at the 99th percentile), patient age, a dummy for patients under 5, patient gender, dummy to identify pregnant patients, a dummy to identify whether the patient (versus a caregiver) answered the survey, the gender of the survey respondent, an ethnicity (Bambara) dummy, a dummy for French speaking respondents, a dummy for literate respondents, a dummy for respondents with a primary education or less. Missing values are recoded to the sample mean. GC, PD, and DD indicate tests of gatekeeping costs, patient-driven, and doctor-driven demand respectively. *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels respectively.

Table B11: Impacts on Malaria Treatment Outcomes - Heterogeneity by Predicted Malaria Risk

	(1)	(2)	(3)	(4)	(5)
		Any Malaria Treatment		Severe Malaria Treatment	
	Used Voucher	Prescribed	Purchased	Prescribed	Purchased
δ_{PH}: Patient Voucher × High Risk	0.34***	0.035	0.11***	-0.056*	-0.023
	(0.040)	(0.037)	(0.039)	(0.031)	(0.032)
δ_{DH}: Doctor Voucher × High Risk	0.32***	0.032	0.082**	-0.12***	-0.12***
	(0.038)	(0.033)	(0.036)	(0.034)	(0.032)
δ_{PL}: Patient Voucher × Low Risk	0.36***	0.090**	0.18***	-0.019	-0.012
	(0.041)	(0.036)	(0.040)	(0.027)	(0.028)
δ_{DL}: Doctor Voucher × Low Risk	0.20***	0.00094	0.079**	-0.0013	0.0066
	(0.031)	(0.035)	(0.033)	(0.029)	(0.024)
θ: High Malaria Risk	-0.054	0.061	0.054	0.096**	0.078*
	(0.041)	(0.045)	(0.049)	(0.049)	(0.046)
P-values and theory-driven tests					
$\delta_{PH} = \delta_{DH}$	0.727	0.932	0.413	0.121	0.012**
Test for mechanism:	GC/DD	–	–	DD	DD
Significant evidence of mechanism:	No	–	–	No	No
$\delta_{PL} = \delta_{DL}$	0.000***	0.016**	0.011**	0.615	0.554
Test for mechanism:	GC/PD	PD	PD	–	–
Significant evidence of mechanism:	Yes	Yes	Yes	–	–
Mean (Control, Low Risk)	0.000	0.486	0.329	0.154	0.116
N	2055	2053	2053	2053	2053

Notes: Robust standard errors clustered at the clinic level in parentheses. All regressions control for clinic visit date fixed effects. Controls include number of symptoms, symptom dummies, duration of illness (topcoded at the 99th percentile), patient age, a dummy for patients under 5, patient gender, dummy to identify pregnant patients, a dummy to identify whether the patient (versus a caregiver) answered the survey, the gender of the survey respondent, an ethnicity (Bambara) dummy, a dummy for French speaking respondents, a dummy for literate respondents, a dummy for respondents with a primary education or less. Missing values are recoded to the sample mean. GC, PD, and DD indicate tests of gatekeeping costs, patient-driven, and doctor-driven demand respectively. *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels respectively.

Table B12: Use of Voucher for Purchased Malaria Treatment

	(1) Severe Malaria Treatment and Used Voucher	(2) Severe Malaria Treatment, No Voucher	(3) Simple Malaria Treatment and Used Voucher	(4) Simple Malaria Treatment, No Voucher
β_P: Patient Voucher	0.042***	-0.065***	0.31***	-0.14***
	(0.010)	(0.020)	(0.029)	(0.021)
β_D: Doctor Voucher	0.0097*	-0.062***	0.26***	-0.11***
	(0.0054)	(0.020)	(0.024)	(0.021)
P-values and theory-driven tests				
$\beta_P = \beta_D$	0.004***	0.886	0.119	0.061*
Test for mechanism:	DD	DD	PD	PD
Significant evidence of mechanism:	No	No	No	Yes
Mean (Control)	0.000	0.255	0.000	0.206
N	2053	2053	2053	2053

Notes: Robust standard errors clustered at the clinic level in parentheses. All regressions control for clinic visit date fixed effects. We use double selection lasso to choose additional controls. See notes to Table 3 for a list of potential controls. DD and PD indicates a test of doctor and patient-driven demand respectively. *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels respectively.

Table B13: Share of Patients Taking An ACT at Home Survey

	(1) All Prescribed ACTs	(2) Prescribed ACT for Simple Malaria
β_P: Patient Voucher	-0.028	0.0037
	(0.039)	(0.036)
β_D: Doctor Voucher	-0.065	0.025
	(0.048)	(0.031)
P-values		
$\beta_P = \beta_D$	0.405	0.562
$\beta_P = \beta_D = 0$	0.408	0.709
Mean (Control)	0.922	0.938
N	460	346

Notes: Robust standard errors clustered at the clinic level in parentheses. All regressions control for clinic visit date fixed effects. We use double selection lasso to choose additional controls. See notes to Table 3 for a list of potential controls. The first column is limited to individuals who purchased an ACT treatment at the CSCom as part of either simple or severe malaria treatment. The second column is limited to individuals who purchased an ACT as part of simple malaria treatment. *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels respectively.

Table B14: Impacts of Patient Information on Malaria Testing at the Clinic

	(1)	(2)	(3)	(4)	(5)	(6)
	All Patients			If Prescribed Antimalarial		
	Any Malaria Test	RDT Test	Microscopy Test	Any Malaria Test	RDT Test	Microscopy Test
Panel A. Overall Effects						
Patient Information	-0.068***	-0.037*	-0.015	-0.059**	-0.015	-0.020
	(0.020)	(0.021)	(0.021)	(0.027)	(0.026)	(0.028)
Mean (No PI)	0.571	0.305	0.265	0.643	0.295	0.334
Panel B. By Voucher Treatment Group						
Patient Information	-0.072*	-0.074**	-0.0086	-0.068	-0.078**	-0.041
	(0.037)	(0.029)	(0.033)	(0.047)	(0.036)	(0.046)
Patient Voucher	0.078*	-0.014	0.088**	0.057	-0.014	0.029
	(0.040)	(0.039)	(0.039)	(0.043)	(0.055)	(0.045)
Doctor Voucher	0.013	0.0096	-0.0032	0.021	0.0013	-0.0046
	(0.039)	(0.034)	(0.031)	(0.053)	(0.053)	(0.040)
Patient Voucher × Patient Information	-0.034	0.028	-0.061	0.0061	0.078	0.014
	(0.048)	(0.041)	(0.044)	(0.059)	(0.057)	(0.053)
Doctor Voucher × Patient Information	0.030	0.052	0.016	0.014	0.10	0.0060
	(0.056)	(0.048)	(0.046)	(0.073)	(0.063)	(0.063)
P-Values						
Patient Voucher=Doctor Voucher	0.178	0.525	0.010***	0.473	0.730	0.379
Mean (No PI, No Voucher)	0.521	0.295	0.230	0.598	0.299	0.304
N	2055	2055	2055	1342	1342	1342

Notes: Robust standard errors clustered at the clinic level in parentheses. All regressions control for clinic visit date fixed effects. We use double selection lasso to choose additional controls. See notes to Table 3 for a list of potential controls. *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels respectively.

Table B15: Impacts on Clinic Revenues and Patient Costs (CFA)

	(1) Clinic Revenues	(2) Patient Costs
Panel A. No Interactions		
β_P: Patient Voucher	-147.8	-511.6
	(326.3)	(331.7)
β_D: Doctor Voucher	-207.0	-531.5**
	(237.6)	(238.8)
P-Values: Two-Sided Tests		
$\beta_P = \beta_D$	0.801	0.934
$\beta_P = \beta_D = 0$	0.669	0.084*
Panel B. Interactions with Predicted Malaria Probability		
δ_{PH}: Patient Voucher × High Risk	-268.0	-633.1
	(488.1)	(497.3)
δ_{DH}: Doctor Voucher × High Risk	-734.6*	-1185.6***
	(378.7)	(379.0)
δ_{PL}: Patient Voucher × Low Risk	-11.8	-405.1
	(368.3)	(372.2)
δ_{DL}: Doctor Voucher × Low Risk	384.6	166.3
	(320.3)	(324.4)
θ: High Malaria Risk	453.7	492.2
	(463.8)	(478.6)
P-values: Two-Sided Tests		
$\delta_{PH} = \delta_{DH}$	0.210	0.147
$\delta_{PL} = \delta_{DL}$	0.267	0.117
Mean (Control)	5098.922	5098.399
N	1864	1864

Notes: Robust standard errors clustered at the clinic level in parentheses. All regressions control for clinic visit date fixed effects. We use double selection lasso to choose additional controls. See notes to Table 3 for a list of potential controls. In Panel B, standard errors are based on 1,000 bootstrap replications, with re-sampling at the clinic level. Predicted malaria risk is re-calculated on each bootstrap replication. All variables measured in CFA top-coded at the 99th percentile. CFA610 ≈ USD1. Malaria cases classified based on doctor prescriptions. *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels respectively.

Table B16: Impacts on Match Between Treatment and Illness - RDT Sub-Sample

	(1)	(2)	(3)	(4)
	Expected Match		Actual Match	
	Prescribed	Purchased	Prescribed	Purchased
β_P: Patient Voucher	-0.041*	-0.090***	-0.030	-0.079**
	(0.024)	(0.022)	(0.033)	(0.032)
β_D: Doctor Voucher	-0.038*	-0.070***	-0.015	-0.096***
	(0.021)	(0.022)	(0.033)	(0.035)
P-values				
$\beta_P = \beta_D$	0.858	0.357	0.634	0.663
$\beta_P = \beta_D = 0$	0.158	0.000***	0.657	0.008***
Mean (Control)	0.482	0.563	0.506	0.607
N	1126	1126	1126	1126

Notes: Robust standard errors clustered at the clinic level in parentheses. All regressions control for clinic visit date fixed effects. We use double selection lasso to choose additional controls. See notes to Table 3 for a list of potential controls. In columns 3 and 4 match quality is equal to 1 if an individual is malaria positive and was prescribed/bought an antimalarial or is malaria negative and was not prescribed/did not buy an antimalarial and is zero otherwise. In columns 1-2 the value of one is replaced with either the probability an individual is positive (for antimalarial receipt) or the probability an individual is negative (for non-receipt). *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels respectively.