What drives the know-do gap in care for child diarrhea?: experimental evidence from private providers in India*

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Abstract

Most healthcare providers in developing countries know that oral rehydration salts (ORS) is a lifesaving treatment for child diarrhea, yet few prescribe it. This know-do gap has puzzled experts for decades and has cost millions of lives. Using several randomized controlled trials among private providers in 253 towns in India, we estimated the extent to which ORS under-prescription is driven by financial incentives to sell more lucrative medicines, stock-outs of ORS, and provider perceptions that patients do not want ORS. We found that patients expressing a preference for ORS increased ORS prescribing by 27 percentage points. Eliminating stock-outs increased ORS provision by 6.8 percentage points. Eliminating financial incentives to sell medicines had no effect on average but increased ORS prescribing at pharmacies by 9 percentage points. Our findings, combined with patient exit surveys suggest that provider perceptions that patients do not want ORS explain 42% of under-prescribing, while stock-outs and financial incentives explain only 6% and 5% respectively.

JEL classification: D10, O12, I11, I12
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1 Introduction

Diarrhea is the second leading cause of death for children in low- and middle-income countries (LMICs) with nearly half a million children under five-years-old dying each year (Perin et al., 2022). This is true despite the fact that nearly all such deaths could be prevented with a simple and inexpensive medicine: oral rehydration salts (ORS). ORS has been lauded as one of the most important medical advances of the 20th century (Lancet, 1978), yet it has been underutilized for decades (Forsberg et al., 2007). Nearly half of diarrhea cases around the world do not currently receive ORS (Sreeramareddy et al., 2017). Millions of young lives could be saved if we can find ways to increase ORS use.

Lack of access to healthcare in LMICs likely explains some portion of low ORS use. However, a majority of children with diarrhea visit a healthcare provider for treatment, and many of these children still do not receive ORS (Sood and Wagner, 2014; Wagner et al., 2015). Providers often prescribe antibiotics instead of ORS, which do not address dehydration and are not appropriate for common viral diarrhea pathogens. Inappropriate prescribing for diarrhea is particularly egregious among private providers, who treat the majority of childhood illness in LMICs (Grépin, 2016; Sood and Wagner, 2014; Wagner et al., 2015). In India, where nearly a quarter of all child deaths from diarrhea occur, over 75% of caretakers seek care for a child's diarrhea from private providers, and 45% do not receive ORS (ICF, 2020).

There is little evidence to date documenting why so many children fail to receive ORS when they visit a private healthcare provider. This is a critical global health question that has been researched for decades (Wagner et al., 2015; Sood and Wagner, 2014; Lam et al., 2019; Mohanan et al., 2015) and that many global funders have tried to address (Mohanan et al., 2016; Associate and USAID, 2016); yet, we still know little about the root causes of the problem. This makes it challenging to design effective interventions to increase ORS prescribing in the private sector. Prior work documents that even when private providers know that ORS is the appropriate treatment for diarrhea, which most do, they still fail to prescribe it (Mohanan et al., 2015). This implies that lack of knowledge is unlikely to be an important driver and educating providers about ORS is unlikely to increase ORS dispensing. Several studies that focused on increasing provider knowledge as a means of improving ORS use have been ineffective (Mohanan et al., 2016, 2017; Friedman et al., 2015). Why is it then that so many children who seek care for diarrhea in the private sector do not receive ORS?

There are several remaining explanations for why private providers under-prescribe ORS. First, providers might think that patients prefer something different than ORS (e.g., an antibiotic) and private providers could be particularly responsive to patient preferences to ensure patients keep supporting their business. Providers might think that patients prefer non-ORS treatments or dislike ORS because of poor taste, lack of observable symptom relief (it treats/prevents dehydration rather than diarrhea symptoms), and a perception that ORS is not a real medicine (it is a powder that is mixed with water rather than a pill or injection). Second, private providers could be responding to financial incentives to sell more profitable alternatives to ORS. ORS is inexpensive and antibiotics generate nearly double the profit. There is evidence that financial incentives drive inappropriate antibiotics prescribing in other settings (Currie et al., 2011, 2014). Finally, private providers often have ORS stock-outs and might prefer to dispense something they have in stock in order to not lose out on the sale (Shelby Wilson, 2012; Wagner et al., 2015). Each of these potential barriers to ORS prescribing suggests a different solution. It is critical to understand how much each barrier contributes to inappropriate care to focus resources towards interventions that would be most effective at increasing ORS use.

This is the first study to quantify the extent to which each of these key barriers contributes to under-prescribing of ORS. Using several randomized controlled trials with 2,282 private providers across 253 towns in Karnataka and Bihar, India, we estimate the effect of provider perceptions of patient preferences, financial incentives, and stock-outs on prescribing for child diarrhea. To estimate the effect of provider perceptions of patient preferences on ORS prescribing, we trained standardized patients (SPs) to pose as caretakers of a child with diarrhea, and we randomize the treatment preferences they expressed to the provider; some SPs expressed a preference for ORS, some expressed a preference for antibiotics, and some expressed no preference. To estimate the effect of financial incentives to sell more lucrative medicines, we randomize half of the SPs that expressed no preference to also inform the provider that they would purchase any prescribed medication from a pharmacy in their home town, thus eliminating the financial incentive at the point of sale. To estimate the effect of stock-outs, we randomized half of the providers to receive a 6-week supply of ORS prior to the SP visit. This generates exogenous variation in stock-outs and thus enables us to isolate the causal effect of stock-outs on ORS dispensing.

We then combine the causal effects estimated in the RCT with population level estimates of the prevalence of each barrier (e.g., the share of providers who had an ORS stock-out), to estimate the effect of eliminating each barrier on ORS prescribing in the population. This allows us to estimate what ORS prescribing would look like in the private sector if each barrier were removed.

We find that providers were highly responsive to patient preferences. Expressing a preference for ORS increased ORS prescribing by 27 percentage points (96%) and reduced prescribing of inappropriate antibiotics by 10 percentage points (14%). Expressing a preference for antibiotics, which was against the standard of care, increased inappropriate antibiotics prescribing by 7 percentage points (11%) but did not affect ORS prescribing. Using caretaker and provider surveys, we show that preferences are a barrier to ORS prescribing not solely because patients do not want ORS (most prefer it to other treatments) or because they request alternative treatments (very few do), but because providers inaccurately *think* most patients do not want ORS.

Clinics assigned to receive ORS supply were 48 percentage points less likely to have a stock-out, but only 3.5 percentage points more likely to dispense ORS; this effect was concentrated among providers who sell medicines. Finally, removing financial incentives increased ORS prescribing at pharmacies by 10 percentage points (58%), but had no effect on prescribing at clinics.

Combining these causal estimates with population surveys of caretakers and providers, we estimate that 42% of under-prescribing of ORS is explained by perceptions that patients do not prefer ORS, 6% is explained by stock-outs, and 5% is explained financial incentives, and the remaining 47% is explained by other factors.

Overall, our results suggest that provider perceptions that patients do not want ORS are a key driver of low ORS prescribing. Financial incentives are an important barrier at pharmacies and ORS stock-outs are an important barrier at clinics that sell medicines, but interventions addressing these two barriers will not move the needle as much as interventions addressing patient preferences.

Our study contributes to existing literature in several ways. First, we provide the most comprehensive evidence to date on why one of the most important health technologies in history (Lancet, 1978) is often not prescribed. There are several papers documenting the problem of suboptimal ORS prescribing (Sood and Wagner, 2014; Sreeramareddy et al., 2017; Mohanan et al., 2015) but very little evidence documenting why this occurs. Our study provides new evidence to help guide interventions to address the problem. Second, we contribute to sparse, but growing evidence on what drives poor quality of care in LMICs. Recent reports on quality of care from the Lancet Commission and the National Academies in addition to a large of body of research highlight the urgent need for global quality improvements (National Academies of Sciences and Medicine, 2018; Kruk and Pate, 2020; Banerjee et al., 2023; Das et al., 2016). Yet, we know little about what drives poor quality of care in LMICs and how to improve it. Moreover, it is unclear why inappropriate care persists despite high levels of provider knowledge of appropriate care. Banerjee et al. (2023) suggest that patients not trusting providers partly explains poor clinical performance despite high levels of knowledge (Banerjee et al., 2023). We show that providers' perceptions of patient preferences could also play a key role in explaining this know-do gap. Third, we contribute to the mixed scientific literature on patient preferences and supplier-induced demand for inappropriate treatments. Currie et al. (2011, 2014) show that patient demand and financial incentives both drive inappropriate antibiotic prescribing in China (Currie et al., 2011, 2014). Lopez et al. (2022) find that private providers in Mali are responsive to patient preferences for antimalarials even when inappropriate (Lopez et al., 2022). However, Lagarde and Blaauw (2023) show that financial incentives are not important for inappropriate antibiotics prescribing in South Africa and that providers over-prescribe antibiotics even when they bear the cost of the drugs (Lagarde and Blaauw, 2022). Moreover, studies from Kenya and Tanzania show that patient preferences for antibiotics play a limited role in inappropriate antibiotics prescribing in those countries (Kwan et al., 2022; King et al., 2022). Our work expands on this literature, showing that inappropriate prescribing could be driven by providers' *perceptions* of patient preferences (e.g. that they do not want ORS) rather than patients' expressed preferences.

2 Setting and Sample

2.1 Setting

This study takes place in two Indian states: Karnataka and Bihar. We chose states that are very different from one another in socio-economic status and diarrhea care seeking to ensure our results are representative of a broad population. Bihar is one of the poorest states in India and is mostly rural. In contrast, Karnataka has above average per capita income relative to other Indian states. Figure S1 shows a map of our study locations.

2.2 Sample

Our sampling strategy consisted of three steps: 1) sampling districts, starting with those with the highest diarrhea prevalence, 2) sampling all towns within a district with a population larger than 10,000 and smaller than 150,000 according to the latest available Census (2011), and 3) recruiting all private providers who treat child diarrhea in the town. We chose not to visit smaller towns because there would be too few providers to enroll and we chose to avoid larger towns because it would be too challenging to draw a representative sample of providers. To recruit providers, we first conducted a census of all clinics and RMPs in the town. We used this census to enroll and survey all providers that were available for interview and provided consent to participate in the study. We were able to contact 59% of those identified in the census and of these 69% consented to participate in the study. We also identified all pharmacies in the town and then randomly sampled an average of two pharmacies per town that were independent establishments and not attached to a clinic or RMP.

Table S1 shows the characteristics of the 2,282 providers in our sample collected through a baseline provider survey. Ninety-two percent of providers were male with an average age of 44 years; providers had 18.5 years of experience on average and 86% said they would give ORS to a child with diarrhea based on a case vignette presented to the provider. Providers saw an average of 24.7 patients per day and 6.3 diarrhea cases per week; 56% dispense medications directly to patients and 52% had ORS available at baseline. Our sample includes four different types of providers; 20% were providers with an MBBS degree (similar to an MD degree in the

United States), 37% were providers with a degree in traditional medicine including Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy (AYUSH), 21% were rural medical practitioners (RMPs) who typically lack formal training but still practice medicine, and 22% were pharmacies. MBBS, AYUSH, and RMP providers generally own their own practice and run it as a business. Most only have one provider seeing patients. We refer to this grouping of providers (i.e. excluding pharmacies) as "private clinics". Pharmacies in our sample are stand alone businesses that sell medicines. Providers working at pharmacies generally have no medical training, but often advise patients on treatment options for child diarrhea and are often the first place caretakers go to seek care. Many clinics have an attached pharmacy that is part of the same business and we interpreted these entities as clinics that sell medicine and not pharmacies.

Table S2 shows characteristics of caretakers in the areas served by the providers in our sample who recently sought care for their child's diarrhea; 57% of caretakers in our setting sought treatment at a private clinic, 31% sought treatment at a private pharmacy, and only 9% sought treatment in the public sector. Of those who sought care from a private provider, 42% were prescribed ORS and 49% were prescribed antibiotics (caretakers are often not able to distinguish between antibiotics and other medicines). These numbers are similar to estimates from Demographic and Health Surveys (ICF, 2020).

3 Study Design

The objectives of this study are to estimate the extent to which providers' perception of patient preferences, providers' financial incentives, and ORS stock-outs contribute to under-prescribing of ORS for child diarrhea. We do this in three phases. In the first phase, we used a series of randomized controlled trials to estimate the effect of each barrier on the probability of ORS prescribing and dispensing. We designed the trials to create random variation in providers perception of patients' medicine preferences, whether the provider has a financial incentive to prescribe more lucrative treatments, and whether the provider has ORS in stock. To estimate the effect of providers' perception of patient preferences, we randomly assigned providers to receive visits from SPs who presented different medicine preferences during the visit with the provider (ORS preference, antibiotics preference, or no preference). To estimate the effect of financial incentives, we randomly assigned half of the no-preference SPs to inform the provider they would not purchase any medicines and only wanted a recommendation, thus eliminating the provider's point-of-sale incentive to prescribe more lucrative treatments. To estimate the effect of ORS stock-outs, we randomly assigned half of the providers in our sample to receive 6-weeks of ORS supply. Table S18 shows sample sizes in each study arm and we describe each of these interventions in detail below.

In the second phase, we used provider and caretaker surveys to estimate the prevalence of each of these barriers in the population: the share of patients who show a preference for ORS and the share of providers with an ORS stock-out (we assumed removing the financial incentive applies to all providers). In the third phase, we combined estimates from phases 1 and 2 to estimate the share of diarrhea cases that would receive ORS from private providers after eliminating each barrier in the population (e.g. what share of patients would receive ORS if all providers had ORS in stock).

We received IRB approval from RAND's human subjects protections committee in the US, the Karesa Independent Ethics Committee in India, and approval from the Indian Council of Medical Research.

4 Interventions

4.1 Standard Patient Visits

The preferences and financial incentives interventions were both done through variation in the way SPs presented a case of child diarrhea when visiting the provider. All SP visits presented a case of a 2-year-old child who had been having diarrhea for two days. Half the SPs presented a moderate case and the other half a severe case, but both cases were severe enough to require ORS. The case was designed such that antibiotics would not be appropriate (no blood in stool, feces quality not sticky/smelly, and short duration). The moderate case had 4-5 loose stools the previous night and the child was taking fluids. The severe case had 10-12 loose stools the previous night, was not taking fluids or food, and showed symptoms of dehydration (low energy and sunken eyes). The only difference between the SP roles were 1) the opening statement where they expressed a preference (four different statements described more below) and 2) the severity of the diarrhea episode (moderate or severe). Each SP played all eight possible SP roles to help control for individual SP effects.

We recruited 40 actors in each state to go through an extensive two week SP training. The training included memorizing a script and responses to common questions (e.g., "when was the last time the child had diarrhea?", "how many times did the child pass stools in the last day?", or "what did the child eat the day before the diarrhea episode began?"). After the opening statement, the SPs were instructed to let the provider lead the encounter and only provide relevant information about the child if the provider asked. Repeated practice ensured that the way the case was presented was as similar as possible across providers and across the different SP roles. At the end of the training, we selected the top 25 actors to make the SP visits. Table S19 shows that the interaction with the provider (time spent, questions asked, etc.) was nearly identical across SP roles in the field, which suggests the different roles were presented similarly and did not influence the duration of provider-patient interaction.

Providers consented to receive a visit from a standardized patient upon study enrollment. All providers enrolled in the study received one visit from an SP posing as a father of a child who had a case of diarrhea (2,282 visits in total). All SPs visited the providers without a child. This pattern of health care, in which a father seeks care on behalf of the sick child, is common in India and enabled the use of SP methods without putting a child at risk. All SPs paid any required doctor fees and attempted to fill prescriptions from a nearby pharmacy to complete the visit. Less than 1% of providers suspected they had received a visit from an SP during follow-up interviews.

4.2 Preferences intervention

During the SP's opening statement when they first encounter the provider, some SPs expressed a preference for ORS, some expressed a preference for antibiotics, and some expressed no preference. All opening statements are in Appendix Table S20. SPs who expressed a medicine preference showed the doctor a picture of used packaging of the medicine on their phone, indicated that they had used this medicine the previous time their child had diarrhea, and asked if they could use it again. SPs who expressed no preference just told the doctor their child had diarrhea and asked for a recommendation. Comparing the preference arms to the no preference arm allows us to investigate whether providers' perceptions of patient preferences are driving under-prescription of ORS and over-prescription of antibiotics.

4.3 Financial incentives intervention

To investigate the effect of financial incentives on prescribing, we randomly assigned half of the SPs who expressed no preference to inform the provider that they only wanted a treatment recommendation (i.e. they will not purchase any treatment) because their sick child was back in their hometown. They were only visiting the current town for work and they would have a relative deliver the treatment to the wife who was home with the child. This reduces the influence of financial incentives in the provider's decision to prescribe one treatment over another. At pharmacies, the SP first purchased some medicine for an unrelated illness (a headache) before asking for a treatment recommendation for their child. Comparing outcomes between SPs who purchased from the provider and SPs who purchased elsewhere allows us to estimate the effect of financial incentives on ORS and antibiotics prescribing. It is important to note that some financial incentives could still remain even when the SP purchases elsewhere, such as incentives associated with repeat business or gifts from pharmaceutical companies. Thus, we did not expect our intervention to completely eliminate all financial incentives, just those associated with point-of-sale revenue.

4.4 ORS supply intervention

To investigate the effect of ORS stock-outs, we layered on a cluster-randomized experiment with the SP experiments described above. In particular, we randomly assigned all providers in half of the towns to receive 60 packets of ORS (about 6 weeks supply). We distributed ORS to providers upon enrollment, which took place two to three weeks prior to the SP visits. This gap between ORS dispensation and SP visits ensured that SP visits were conducted before the supply we gave was expected to run out. We told providers that the ORS was meant for their patients but they could dispense as they see fit. This creates an exogenous increase in the share of providers that have ORS stocked in the towns assigned to the intervention. Comparing outcomes from providers who received increased supply to providers that did not allows us to assess the effect of supply and stock-outs on ORS dispensing.

5 Validity of SP design

There is a growing body of research that uses SP designs to measure quality of care and provider behavior (Wagner et al., 2023, 2022a; Das et al., 2016; Mohanan et al., 2015; Das et al., 2022; Kwan et al., 2019). Although this method is now widely accepted as a rigorous and accurate method for measuring quality, there are still valid concerns that SPs might receive different care than would real patients. To address this, we built in several features in our study to test the validity of our SP design. First, we returned to providers on the same day as the SP visit to assess whether they suspected that any of their patients were one of our SPs and only 1% suspected anything (which may or may not have changed behavior of this 1%). Second, we compared the care received by our SPs to the care reported in caretaker surveys. We found very similar ORS prescribing rates; 42% among caretakers vs. 35% on average in our sample. Third, we find in household surveys that 12.5% of caretakers sought care without bringing the child to the provider visit, showing that our SP scenario is sufficiently common. We also randomized whether the child was present in vignettes, which are stylized cases read out to providers in order to elicit information about how they might treat this hypothetical patient. The presence of a child in a vignette did not affect the care the provider stated they would provide (results not shown). Overall, we find little evidence to suggest that providers gave different care to our SPs than they would to the general population.

6 Randomization

All providers enrolled in the study received one visit from an SP (2,282 visits in total) and we randomly assigned which of the eight different SP profiles the provider received, stratifying by town. We also stratified opening statement randomization on case severity to ensure balance on severity. We randomized the ORS supply intervention at the town level, stratified by population size, and all providers in towns assigned to the treatment group received ORS supply. Figure S3 portrays the randomization flow diagram for the supply intervention, Figure S4 portrays the same for the SP interventions, and Table S18 shows the sample size for each study arm.

7 Data Collection and Outcomes

We collected four different types of data in this study. First, we conducted caretaker (household) and provider surveys. We then returned three weeks later to conduct a standardized patient visit with all enrolled providers and recorded what happened during the visit. Finally, we conducted follow-up visits with providers soon after the SP visit (usually within hours). Figure S5 portrays the timeline of all study activities.

7.1 Baseline Provider Survey

The baseline provider survey was conducted when providers were recruited and enrolled into the study. This survey provides a measure of ORS stock-outs at baseline in addition to information on provider characteristics and provider knowledge of diarrhea treatment using vignettes.

7.2 Standardized patient survey

SPs were trained extensively on what to look for during each visit and how to record data about the visit. Within an hour of making the visit, SPs filled out a detailed form administered by a supervisor that documented several aspects of their interaction with the provider, including the treatment(s) the provider prescribed/dispensed.

7.3 Follow-up Provider Survey

Within a few hours of the SP visit, a member of the study team returned to the provider to conduct a short follow-up survey. This survey had two main objectives. First, we used this survey to measure whether the provider had ORS and/or antibiotics available to dispense at the time of the SP visit, which is important for estimating the stock-out effect. Second, we measured whether the provider suspected a visit from anyone from our study team.

7.4 Caretaker Survey

We used household-based surveys to help characterize the care-seeking patterns and treatment preferences among caretakers in our study areas. This allows us to measure the extent to which caretakers express a treatment preference when visiting the provider. We recruited caretakers who had a child under 10-years-old with a case of diarrhea in the previous 4-weeks. In each town, the team visited the surrounding slums and villages—areas served by the providers in the town—and selected households to visit using a combination of random and snowball sampling. Diarrhea prevalence was much higher in Bihar and thus we were able to recruit more caretakers there (n=963) than in Karnataka (n=237).

7.5 Outcomes

The two primary outcomes are whether the provider prescribed or dispensed ORS and whether the provider prescribed or dispensed antibiotics. We coded these binary outcomes to 1 if the SP was given the treatment directly, was given a written prescription, or was verbally recommended the treatment. SPs retained packaging and written prescriptions and worked with the fieldwork manager to identify and record each treatment prescribed/dispensed. When there was uncertainty about what a treatment was, the team would call a pharmacist contracted by the study team to help classify the treatment (ORS is easy to identify but there were a few cases where the team was not sure if a product was an antibiotic or not). If the provider recommended a home-made oral rehydration remedy, we coded this as not prescribed/dispensed ORS, but this was recommended at less than 1% of visits. When assessing the impact of the ORS supply intervention we also separately analyze ORS dispensing (given directly to the SP) as ORS supply is most likely to affect dispensing ORS rather than prescribing ORS.

8 Empirical Framework

Our analysis plan was preregistered at ClinicalTrials.gov (NCT04833790) at the American Economic Association's RCT registry (AEARCTR-0007276). We estimated all regressions using linear probability models with standard errors clustered by town (Abadie et al., 2017) in accordance with our pre-analysis plan (Wagner et al., 2022b). To estimate the effect of patient preferences on a providers' decision to prescribe/dispense ORS or antibiotics, we compare average treatment outcomes between SPs who exhibited a preference compared to those who did not exhibit a preference. We excluded SPs who informed the provider they would not purchase anything when estimating preference effects. To estimate the effect of financial incentives, we compared treatment outcomes between no-preference SPs who informed the provider they would purchase elsewhere and those who did not. For both comparisons, we estimated unadjusted models and adjusted models that controlled for severity of the case, whether the provider received free ORS supply, providers' training, if the provider dispenses medicines, if the provider knew ORS was the correct treatment at baseline, providers age and gender, number of patients per day, number of diarrhea cases per week, years of experience, and whether the provider had ORS in stock at baseline. We chose covariates based on *a priori* expectations about what variables would affect ORS prescribing/dispensing.

We estimated three models to assess the effect of the ORS supply intervention. In the first model, we estimated the effect of the ORS supply intervention on having ORS in-stock by comparing the share of providers who had ORS in-stock at endline (the time of the SP visit) between the treatment and control group. Second, to examine the intention-to-treat (ITT) effect of receiving free ORS supply on treatment dispensing, we compared average treatment outcomes between treatment and control providers (i.e. the reduced form). For this analysis, we focused on whether ORS was dispensed directly to SPs (rather than prescribed) because this is the channel through which we expected ORS supply to increase ORS use; provider's who have ORS on site are unlikely to prescribe ORS to be retrieved from a different location. The ITT effect is important for understanding the impact of the ORS supply intervention, but it does not directly estimate the effect of ORS stock-outs because some providers in the control group also had ORS in-stock. To estimate the effect having ORS in-stock vs. not, we used a two-stage least squares (2SLS) approach, using random assignment to receiving ORS supply as an instrument for having ORS in-stock (Sussman and Hayward, 2010). We excluded pharmacies from our main analysis of the ORS supply intervention because 95% of pharmacies had ORS in-stock in the control group and thus the ORS supply intervention did not significantly affect stock-outs among pharmacies (Table S12).

9 Results

9.1 Status Quo Care for Child Diarrhea

Table 1 describes status quo prescribing/dispensing for child diarrhea among providers who were not assigned to receive ORS supply and where the SP expressed no preference. With no intervention, 28% of providers prescribed or dispensed ORS to SPs although 86% said they would prescribe ORS in a provider survey (see Table S1), and 69% prescribed or dispensed antibiotics although only 50% said they would. This shows that the know-do gap in child diarrhea care uncovered by Mohanan et al. (2015) still persists over a decade later (Mohanan et al., 2015). This also highlights that lack of knowledge about the standard of care is likely not the root cause of under-prescribing of ORS. On average, providers dispensed 1.8 different medicines and the visit costed 115 INR ($1.44 USD). Providers spent about 4 min on average with our SPs. Providers in Bihar were more likely to prescribe ORS and/or antibiotics, spend more time with the SPs, and were more likely to dispense medication directly to the patient compared to providers in Karnataka. Table S3 shows that pharmacies were least likely to prescribe/dispense ORS (16%) and MBBS providers were most likely prescribe/dispense ORS (43%).

Table S4 shows that providers in the four SP study arms were balanced on key characteristics and Table S5 shows that the two ORS supply arms were also balanced.

9.2 Effect of Expressing Treatment Preferences

Table 2 shows that when SPs expressed a preference for ORS, providers were 27 percentage points more likely to prescribe/dispense ORS (96% increase); 28.0% prescribed/dispensed ORS when SPs expressed no preference and 55.1% prescribed/dispensed ORS when SPs expressed an ORS preference ($p<0.01$; Table 2 top panel). Providers were also 10 percentage points less likely to prescribe antibiotics when SPs expressed a preference for ORS (14% decrease). When SPs expressed a preference for (inappropriate) antibiotics, providers were 7.3 percentage points more likely to prescribe antibiotics (10% increase); 70.4% prescribed antibiotics when SPs expressed no preference and 77.7% prescribed antibiotics when SPs expressed a preference for antibiotics (p<0.01). Expressing a preference for antibiotics did not change ORS prescribing.

Table S6 shows that the effect of showing an ORS preference was strongest among providers with no formal training, with a 47 percentage point increase for pharmacies and a 41 percentage point increase for RMPs, and weakest among the providers with most training, with an 8.9 percentage point increase for MBBS providers (p-value of difference in effect was <0.01 for both pharmacies and RMPs compared to MBBS). There was no difference in the preference effect by state (Table S7) or by case severity (Table S8).

Using data from caretaker and provider surveys, we find that patient preferences are a barrier to ORS prescribing not because caretakers do not want ORS, but rather because providers inaccurately *think* most patients do not want ORS. Table 3 shows that despite 48% of caretakers reporting ORS as the best treatment for child diarrhea (far higher than any other treatment), only 16% expressed a preference for ORS when seeking care. As a result, providers think that only 18% of their patients want ORS. Thus, preferences appear to be a barrier to ORS prescribing/dispensing mainly because of inaccurate provider perceptions of patient preferences.

9.3 Effect of Eliminating Financial Incentives

Figure S2 shows that the revenue and profits from antibiotics are substantially larger than for ORS. On average, ORS prescribing was not significantly different when SPs purchased medicines from the provider (financial incentive) compared to when SPs informed the provider they would purchase elsewhere (no financial incentive; top panel of Table 4). However, pharmacies (a prespecified sub-group) were 9 percentage points more likely to prescribe ORS when the financial incentive was removed (50% increase), which suggests that low ORS prescribing at pharmacies might be partly explained by financial incentives. The effect for RMPs was also of an important magnitude (13 percentage points; Table S9) but not statistically significant.

Similar to ORS prescribing, removing the financial incentive to sell medicines did not affect antibiotics prescribing on average. However, removing financial incentives to sell medicines may have reduced antibiotic prescribing among MBBS providers; 15 percentage point reduction only significant in adjusted models. The effect of financial incentives was similar across states (Table

S10) and by case severity (Table S11).

9.4 Effect of Reducing ORS Stock-Outs

The ORS supply intervention increased the likelihood that clinics had ORS on site to dispense by 52.1 percentage points; from 28.2% to 80.4% (Table 5 top panel). However, this led to only a 3.5 percentage point increase in ORS dispensing (p=0.049). Using a two-stage least-squares (2SLS) instrumental variables regression, we estimate that the effect of having ORS in stock increases the probability of dispensing ORS by 6.8 percentage points. However, these improvements were entirely driven by clinics that sell medicines (a pre-specified sub-group). In these clinics, the ORS supply intervention increased ORS dispensing by 8.3 percentage points and having ORS in stock increased ORS dispensing by 16.6 percentage points (middle panel of Table 5). In contrast, having ORS in stock did not change ORS dispensing among providers who do not sell medicines (bottom panel of Table 5) even though the ORS supply intervention increased the probability of having ORS in stock by a similar amount among these clinics. Our main analyses of the ORS supply intervention exclude pharmacies because nearly all pharmacies had ORS in-stock in the control group (Table S12). This suggests stock-outs are not driving ORS dispensing at pharmacies. However, our conclusions are similar when we include pharmacies (Table S13).

The improvements from the ORS supply intervention were entirely driven by increased ORS dispensing in Bihar. The intervention increased ORS dispensing by 8.0 percentage points (66%) in Bihar on average ($p<0.05$), and by 11.6 percentage points among clinics that sell medicines (Table S14). In contrast, the average effects and effects for clinics that sell medicines in Karnataka were close to zero and insignificant (Table S15).

Providers might switch from writing ORS prescriptions to dispensing ORS directly to patients after receiving ORS supply. Thus, one potential spillover effect of the supply intervention is a reduction in ORS prescriptions, which would mitigate the benefits of increased ORS dispensing. This did not seem to happen. ORS prescribing/dispensing increased by roughly the same amount as ORS dispensing alone (Table 5), which suggests that the additional patients who were dispensed ORS would not have received an ORS prescription absent the intervention.

9.5 Complementary Effect of ORS Supply and Expressing ORS Preferences

We find evidence suggesting that patients' preference for ORS and providers having ORS in stock are complementary factors. Table S16 shows that the effect of showing a preference for ORS was larger when the provider was assigned to the ORS supply arm (30 percentage point increase compared to 24 percentage point increase). We also find that the ORS supply intervention was more effective when the SP showed a preference for ORS (14.8 percentage point increase in ORS dispensing compared to 6.8; Table S17). However, due to small sample sizes for these subgroups, interaction effects between ORS preferences and ORS supply are not statistically significant.

10 Contribution of Each Barrier

To inform which interventions are likely to be most effective at increasing ORS provision, it is important to assess the extent to which each barrier examined above contributes to under-prescribing of ORS at the population level. For example, if most patients already show a preference for ORS, then patient preferences are not contributing much to the problem even if showing an ORS preference increases ORS prescribing/dispensing. We combine our regression estimates of the effect of each barrier on ORS prescribing/dispensing with estimates of the prevalence of each barrier in the Indian population to estimate the contribution of each barrier to under-prescribing.

For each effect size, we used the provider type specific effects from Tables S6, S9, and S12 weighted by the market share for each provider type based on caretaker reports; 35% of diarrhea cased go to pharmacies, 23% go to MBBS providers, 12% go to RMPs, and 29% go to AYUSH providers. We used surveys of caretakers whose child had a recent diarrhea episode to estimate the share of caretakers who received ORS when visiting a private provider (42%) and the share that showed a preference for ORS (16%). If instead all patients showed a preference for ORS (i.e. 84 percentage point increase, from 16% to 100%,) it would increase ORS prescribing by 24.5 percentage points; from 42% of caretakers receiving an ORS prescription to 66.5%

(Figure 1). Fifty eight percent of providers in the control group experienced ORS stock-outs at endline; eliminating these stock outs would increase ORS prescribing by an additional 3.7 percentage points to 70.2%. Finally, eliminating financial incentives to sell medicines increases prescribing by another 2.4 percentage points to 73%. Other barriers not addressed by this study explain the remaining 27% of cases that would not receive ORS even after these three barriers were eliminated. Thus, provider perception of patient preferences explain 42% of the problem (24.5/58), stock-outs explain 6.4% (3.7/58), financial incentives explain 5% (2.4/58), and other barriers explain 47% (27/58). See Appendix for a more detailed description of these calculations.

11 Discussion

Despite widespread awareness and availability of ORS, uptake has remained low for decades across the globe (Sreeramareddy et al., 2017). As a result of this know-do gap, nearly half a million children continue to die from diarrhea each year (Perin et al., 2022). The reasons for lack of ORS prescribing despite high provider knowledge of ORS appropriateness have remained elusive. This is the first study to rigorously estimate which factors are the biggest drivers of low ORS prescribing rates. We find that provider perceptions of patient preferences play the biggest role in under-prescribing of ORS. Simply signaling a preference for ORS to the provider doubles the likelihood that a patient is prescribed or dispensed ORS. Although 48% of caretakers reported ORS as the best diarrhea treatment, only 16% of caretakers surveyed expressed an ORS preference to the provider when seeking care for their child's diarrhea. As a result, providers perceive that only 18% of caretakers have an ORS preference. Taken together, this suggests that interventions to change provider perceptions of patient preferences for ORS should be aggressively explored as they have potential to substantially increase ORS use. Such interventions could inform providers that ORS preferences are more common than they think or encourage caretakers to express an ORS preference when they seek care.

We found substantial heterogeneity in the effect of signaling preferences for ORS by provider type. MBBS providers, who are the most educated, prescribed/dispensed ORS at the highest rates (although still far lower than optimal) and were the least sensitive to patient preferences.

This could be because the expertise of these providers is more trusted and their business model relies less on satisfying patient requests. Pharmacies and RMPs were most responsive to patient preferences. These providers who lack formal training might be less confident in their medical expertise and their businesses might rely more on appeasing customer requests for medicines and tests. This suggests that interventions that address patient preferences are likely to be most effective if they target non-MBBS providers, which account for about three quarters of the market share for child diarrhea cases in the private sector. Moreover, this suggests that among MBBS providers, other factors not investigated in this study are likely driving the problem. More work is needed to better understand why MBBS providers fail to prescribe ORS.

We also find that showing a preference for ORS reduced antibiotics prescribing. Antibiotic resistance to diarrhea pathogens is a global crisis (Neupane et al., 2023) and India is one of the largest contributors to global antibiotic resistance (Center For Disease Dynamics and Policy, 2015). Child diarrhea is one of the most common illnesses for which antibiotics are prescribed inappropriately and India accounts for the most cases of child diarrhea of any country in the world (Reiner et al., 2020). Thus, changing provider perceptions of ORS preferences in India could help curb global antibiotic resistance.

We find that ORS stock-outs pose an important barrier to ORS prescribing for some providers. But the stock-out effect is nuanced, only important among clinics that sell medicines and not important at pharmacies because nearly all had ORS available at baseline. Thus, appropriate targeting of interventions to address stock-outs is extremely important. Moreover, we found that stock-outs only affected ORS dispensing in Bihar, and increasing ORS supply in Karnataka had no effect on ORS dispensing. This could partly be explained by the fact that the distribution of provider types is different between the two states; Bihar has more RMPs, who sell medicines, and Karnataka has more MBBS doctors, who generally do not sell medicines (Table S1). However, more work is needed to fully understand why increases in ORS supply in Karnataka had no effect on ORS dispensing.

The ORS stock-out effect does not appear to be driven by general supply chain issues because nearly all pharmacies had ORS available. Instead, it appears to be driven by clinics that sell medicines failing to order sufficient ORS inventory and avoiding recommending ORS if it was not in stock. This could be because they want to sell products that they have in stock to not lose the sale. In contrast, providers who do not sell medicines are accustomed to recommending rather than dispensing medicines, so giving them ORS did not increase their rate of dispensing ORS.

We find that financial incentives to sell medicine are an important barrier to prescribing at pharmacies; pharmacies were 50% more likely to prescribe ORS when the financial incentive was removed. About a third of diarrhea cases seek care from pharmacies in our study area (Table S2), so this represents a non-trivial barrier to ORS use. Thus, interventions to restructure financial incentives, such as providing an extra financial incentive to encourage pharmacists to prescribe ORS, could be effective. It is also important to note that our study likely under estimates the effects of financial incentives on prescribing or dispensing of ORS and antibiotics. For example, providers might have the habit of dispensing antibiotics instead of ORS due to the higher per unit profits from selling antibiotics. Because of this habit formation, these providers will continue to prescribe antibiotics even when the patient informs them that they will purchase the medicines elsewhere. In addition, our study only addressed point-of-sale profit incentives. It is possible providers have additional financial incentives to encourage repeat business or through kickbacks from pharmaceutical companies. Thus, some financial incentives likely remained even when the SP was purchasing elsewhere.

This study has several limitations. First, due to ethical issues, we could not have a child present during SP visits. Although the care received by SPs is similar to the care reported in caretaker surveys, it is possible that the treatment effects we estimate would be different if a child were present. Second, our estimation of the contribution of each barrier requires many assumptions that are uncertain. For example, measuring caretakers' ORS and treatment preferences is complex, and it is possible our measures such as fraction of household reporting ORS as best treatment estimated using simple questions on a household survey might not fully capture treatment preferences of patients. Third, although the effects we estimate for each barrier have high internal validity, the effects in our experiment might not generalize to scenarios where interventions to address each barrier are scaled up more broadly. For example, patients asking for ORS might increase ORS use but this in turn might increase the price of ORS, reducing ORS use in future periods. It is difficult to estimate such general equilibrium effects in an experimental setting. Finally, we do not have good data on the additional barriers that are driving under prescribing of ORS that were not addressed by this study and explain roughly 47% of the problem. More research is needed to identify these additional barriers.

12 Conclusion

A long-standing puzzle in global health has been that providers do not prescribe ORS for child diarrhea although they know it is the standard of care. We show that providers' perceptions that patients do not prefer ORS explain a large portion the problem. Interventions to change providers' perceptions of patients' ORS preferences have the potential to increase ORS use and reduce child mortality from diarrhea.

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Table 1: Prescribing in no-preference control group

	Pooled (N = 275)	Bihar (N = 146)	Karnataka (N = 129)
Prescribed/dispensed ORS	0.276	0.308	0.240
Prescribed/dispensed Antibiotics	0.691	0.781	0.589
Prescribed/dispensed Zinc	0.091	0.123	0.054
Prescribed/dispensed ORS+Zinc	0.047	0.068	0.023
Directly dispensed any medicines	0.476	0.521	0.426
Number of medicines prescribed/dispensed	1.8	2.2	1.5
Cost of visit (INR)	116	157	69
Time spent with provider	4.2	4.8	3.5

Notes: Data was recorded from standardized patient (SP) visits from SPs who showed no treatment preference and providers who did not receive ORS supply.

Table 2: Effect of patient preferences on prescribing for child diarrhea

ORS Preference vs. No Preference			*Treatment Effect*	
	No Preference	ORS Preference	No Controls	Controls
	N=560	N=572		
Prescribed/Dispensed ORS	0.280	0.551	0.270***	0.270***
			(0.029)	(0.029)
Prescribed/Dispensed Antibiotics	0.704	0.603	-0.100***	-0.098***
			(0.027)	(0.026)
Antibiotics Preference vs. No Preference			*Treatment Effect*	
	No Preference	Antibiotics Preference	No Controls	Controls
	N=560	N=569		
Prescribed/Dispensed ORS	0.280	0.274	-0.006	-0.006
			(0.025)	(0.025)
Prescribed/Dispensed Antibiotics	0.704	0.777	0.073***	0.080***
			(0.023)	(0.023)

Notes: Data on prescribing is from surveys completed by standardized patients after a visit with the provider. Treatment effects are estimated using linear regression with standard errors clustered by town. Controls column includes the severity of the case, whether the provider received free ORS supply, providers' training, if the provider dispenses medicines, if the provider knew ORS was the correct treatment at baseline, providers age and gender, number patients per day, number of diarrhea cases per week, years of experience, and whether the provider had ORS in stock at baseline. Standard errors, clustered by town, are in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table 3: Caretaker preferences

	N (%)
Caretaker perception of best treatment	
ORS Preference	584 (48%)
Antibiotics Preference	176 (14%)
Other Medicines Preference	472 (40%)
No Preference	54 (4%)
Caretaker preference expressed to provider	
ORS Preference	191 (16%)
Other Medicine Preference	37 (3%)
No Preference	972 (81%)
Provider perception of caretaker preferences	
ORS Preference	18%
Antibiotics Preference	12%
Other Medicine Preference	12%
No Preference	58%

Notes: Data from caretakers are from household surveys of caretakers who had a child with a recent case of diarrhea. Caretaker perception of best treatment is from a questions that asked caretakers "what is the best treatment for child diarrhea?" (unprompted). Caretaker preferences expressed to provider is from a question asking caretakers if they "asked at all about any treatments" and "if so, which ones?". Provider perceptions of caretaker preferences is from a question asking providers what share of their patients have a preference for the different treatments.

Table 4: Effect of provider financial incentives on prescribing for child diarrhea

All Providers Who Sell Medicine			*Treatment Effect*	
	Purchase from Provider N=332	Purchase elsewhere N=321	No Controls	Controls
Prescribed/Dispensed ORS	0.256	0.302	0.046	0.042
			(0.030)	(0.030)
Prescribed/Dispensed Antibiotics	0.702	0.689	-0.013	-0.023
			(0.035)	(0.033)
Pharmacies			*Treatment Effect*	
	Purchase from Provider N=137	Purchase elsewhere N=135	No Controls	Controls
Prescribed/Dispensed ORS	0.182	0.272	0.090**	0.091**
			(0.045)	(0.045)
Prescribed/Dispensed Antibiotics	0.781	0.772	-0.009	-0.015
			(0.049)	(0.050)
Clinics that sell medicine			*Treatment Effect*	
	Purchase from Provider N=197	Purchase elsewhere N=222	No Controls	Controls
Prescribed/Dispensed ORS	0.310	0.315	0.006	-0.002
			(0.045)	(0.045)
Prescribed/Dispensed Antibiotics	0.650	0.635	-0.015	-0.039
			(0.047)	(0.043)

Notes: Data on prescribing is from surveys completed by standardized patients after a visit with the provider. Treatment effects are estimated using linear regression with standard errors clustered by town. Controls column includes the severity of the case, whether the provider received free ORS supply, providers' training, if the provider dispenses medicines, if the provider knew ORS was the correct treatment at baseline, providers age and gender, number patients per day, number of diarrhea cases per week, years of experience, and whether the provider had ORS in stock at baseline. Standard errors, clustered by town, are in parentheses.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 5: Effect of ORS supply on prescribing for child diarrhea

All Clinics

	Control	Given Supply	Effect of Supply Intervention	Effect of ORS In-Stock
	N=885	N=891		
ORS in stock at follow-up	0.282	0.804	0.521***	
			(0.033)	
Dispensed ORS	0.087	0.122	0.035**	0.068**
			(0.018)	(0.033)
Prescribed/Dispensed ORS	0.349	0.376	0.026	0.051
			(0.029)	(0.056)

Clinics that Sell Medicines

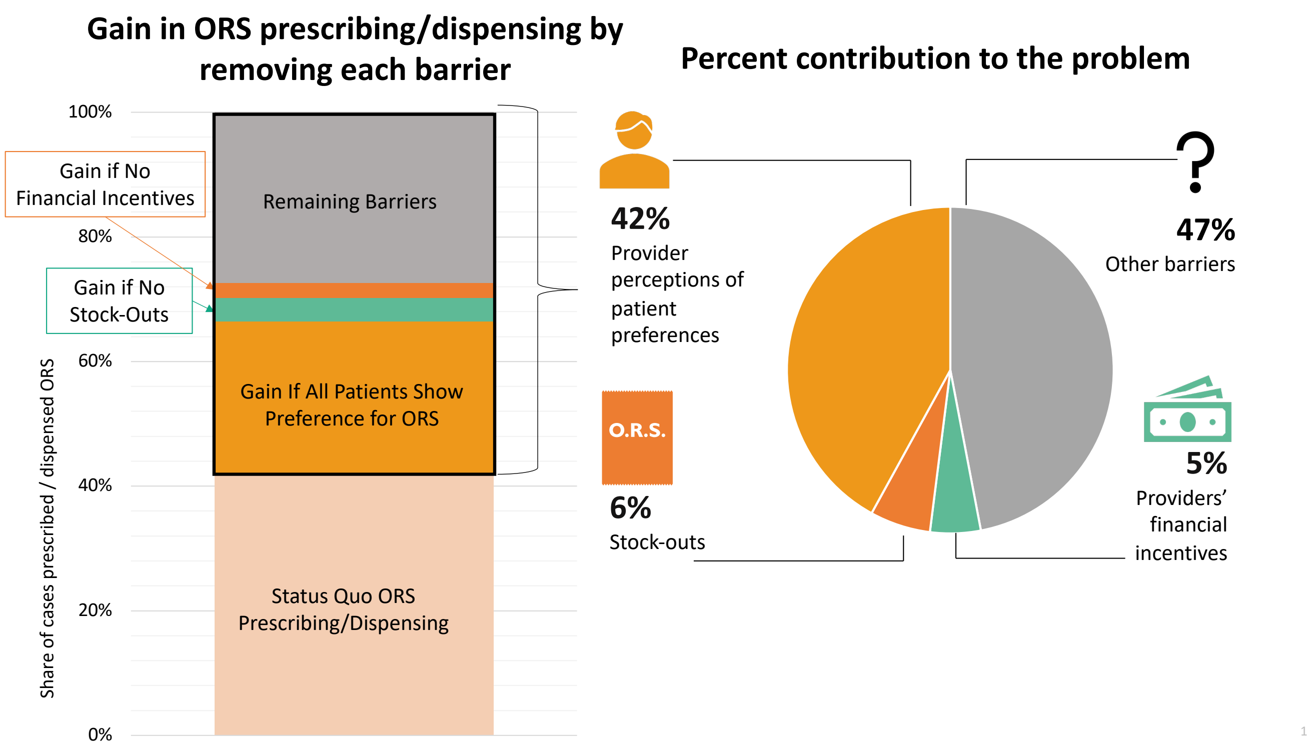
	Control	Given Supply	Effect of Supply Intervention	Effect of ORS In-Stock
	N=385	N=370		
ORS in stock at follow-up	0.382	0.881	0.499***	
			(0.042)	
Dispensed ORS	0.111	0.195	0.083***	0.166***
			(0.029)	(0.057)
Prescribed/Dispensed ORS	0.319	0.400	0.081**	0.161**
			(0.040)	(0.078)

Clinics that Do Not Sell Medicines

	Control	Given Supply	Effect of Supply Intervention	Effect of ORS In-Stock
	N=501	N=521		
ORS in stock at follow-up	0.208	0.749	0.541***	
			(0.037)	
Dispensed ORS	0.069	0.071	0.002	0.006
			(0.017)	(0.032)
Prescribed/Dispensed ORS	0.372	0.358	-0.014	-0.023
			(0.035)	(0.066)

Notes: Data on prescribing and dispensing is from surveys completed by standardized patients after a visit with the provider. Data on ORS stock is from follow-up provider surveys completed on the same day as SP visit. Effect of the supply intervention was estimated using linear regression with standard errors clustered by town. Effect of ORS in-stock was estimated using two-stage least squares regression with random assignment as an instrument for having ORS in stock. Standard errors in parentheses are clustered by town. *** p<0.01, ** p<0.05, * p<0.1

Figure 1: Contribution of Each Barrier



Notes: Estimates are based on effects of removing each barrier combined with estimates on prevalence of each barrier. Parameters used for these calculations are listed in Table S21. In the status quo, 16% of patients show a preference for ORS, 42% of providers have ORS in stock, and the financial incentive was removed for all providers.

Estimating the Contribution of Each Barrier

In this section, we describe how we calculated the contribution of each mechanism to create Figure 1. To estimate the effect of removing each barrier we, combined two main parameters: 1) the effect of each barrier on ORS prescribing/dispensing and 2) the prevalence of each barrier in the population. Because there is substantial heterogeneity in the treatment effects by provider type, we used the provider specific treatment effects from Tables S6, S9, and S12 weighted by the market share for the respective provider type to estimate a global population-level treatment effect that is adjusted for market share. Market shares were estimated using caretaker reports of where they sought care from the household surveys. Because ORS supply and showing an ORS preference are complimentary, we used the supply effect when patients also show an ORS preference. Table S21 shows parameters that we used to estimate the market share adjusted treatment effects and equation 1 shows the equation we used for this estimation.

$$\sum_j effect_j \times MarketShare_j \tag{1}$$

For each provider type j, we multiplied the market share by the effect size, and then took the sum across all provider types. This equation gives 0.29 for the effect of showing an ORS preference, 0.03 for financial incentives, and 0.06 for having ORS in-stock.

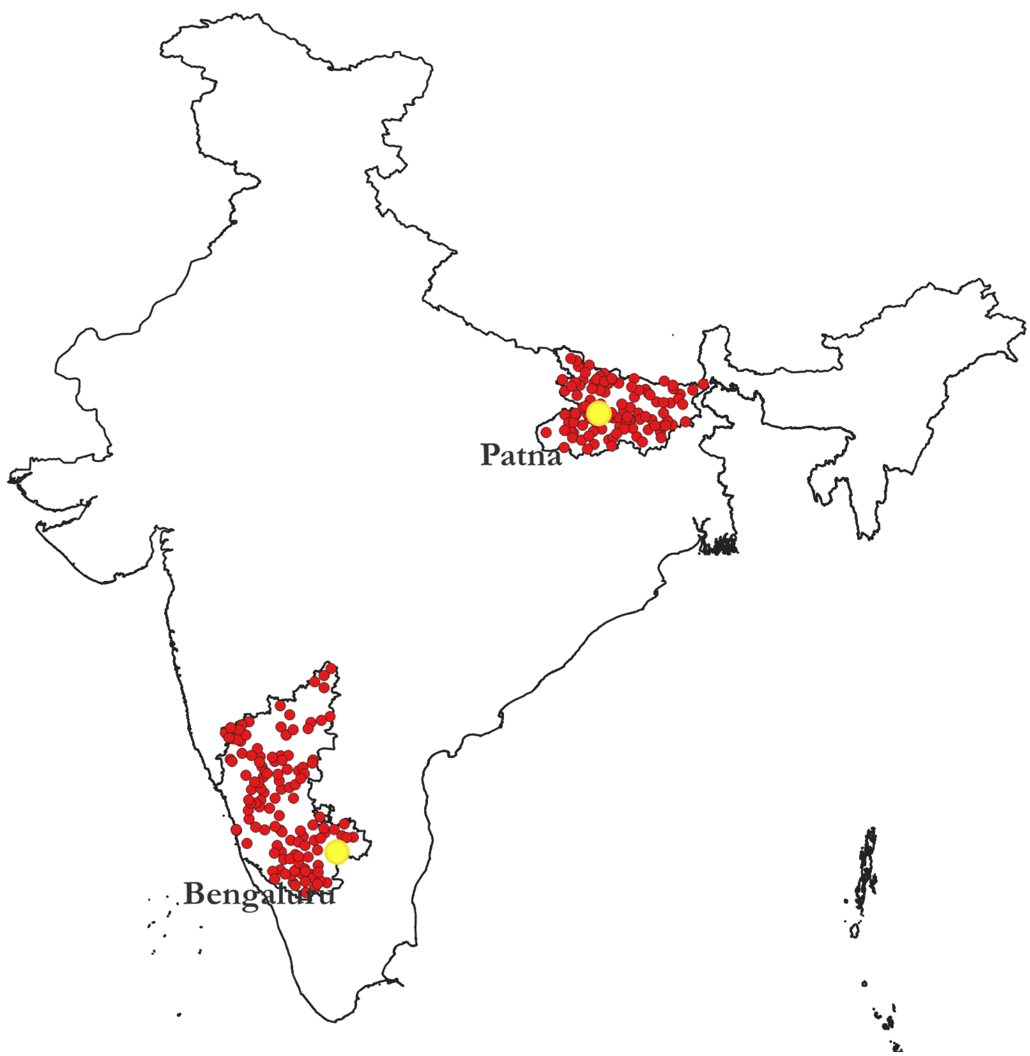
We then used the market share adjusted treatment effects combined with the status quo prevalence of each barrier; 84% of caretakers said they did not show an ORS preference in the caretakers surveys and 58% of providers had an ORS stock-out in the control group that did not receive ORS supply. We assumed point-of-sale financial incentives were eliminated for all providers who received a visit from an SP who purchased elsewhere. To estimate the effect of removing each barrier, we used the following equation.

$$effect_b \times prev_b \tag{2}$$

For each barrier b, we multiplied the market share adjusted treatment effect by the prevalence of each barrier. If all patients showed an ORS preference, this would increase ORS prescribing/dispensing by $0.29 \times 0.84 = 0.24$; if there were no ORS stock-outs, this would increase ORS prescribing/dispensing by $0.06 \times 0.58 = 0.04$; and if there were no financial incentives, this would increase ORS prescribing/dispensing by $0.03 \times 1 = 0.03$.

Appendix Figures

Figure S1: Map of towns included it the study



Notes: Red dots represent the 253 towns where the study was conducted and the yellow dots represent the major cities in each state.

Figure S2: Profit margins for ORS and Antibiotics

Notes: Wholesale prices are from pharmaceutical representives from who the study team purchased ORS for the supply intervention. Wholesale price for antibiotics is for a bottle of liquid antibiotics. Profit is the difference between the wholesale price and the average price paid by our standardized patients.

Figure S3: CONSORT Flow Diagram (ORS Supply Intervention)

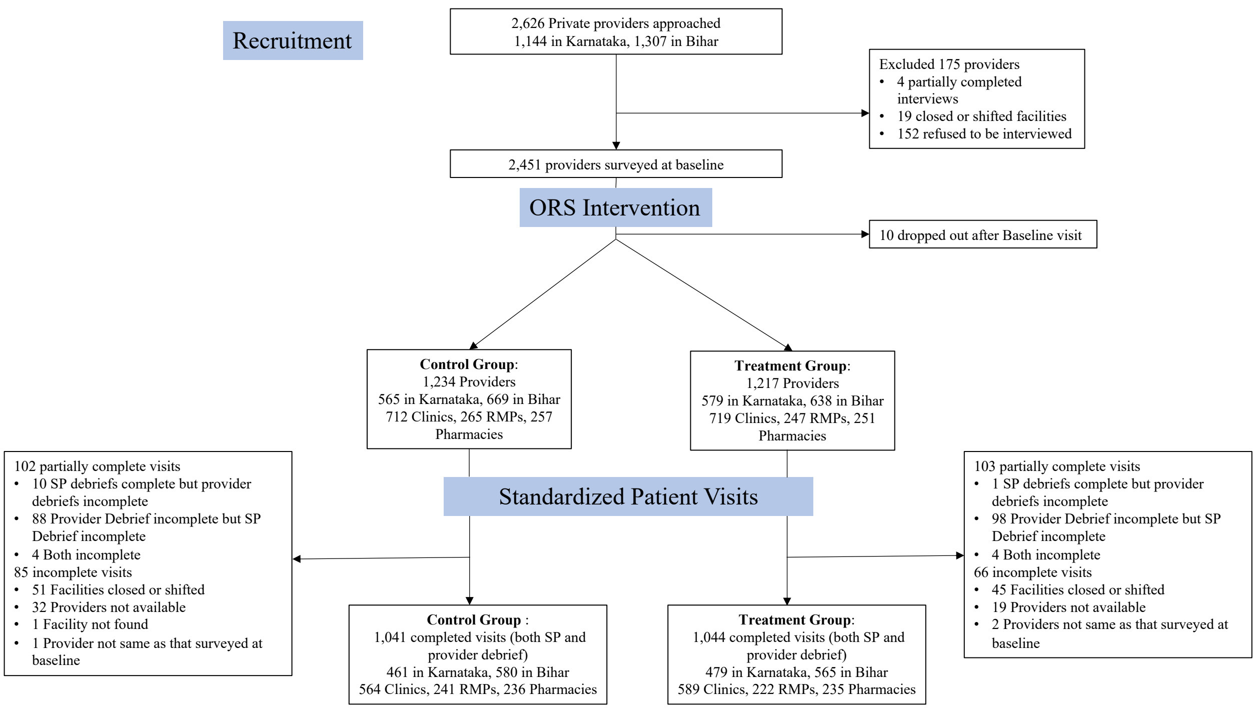


Figure S4: CONSORT Flow Diagram (Standardized Patient Interventions)

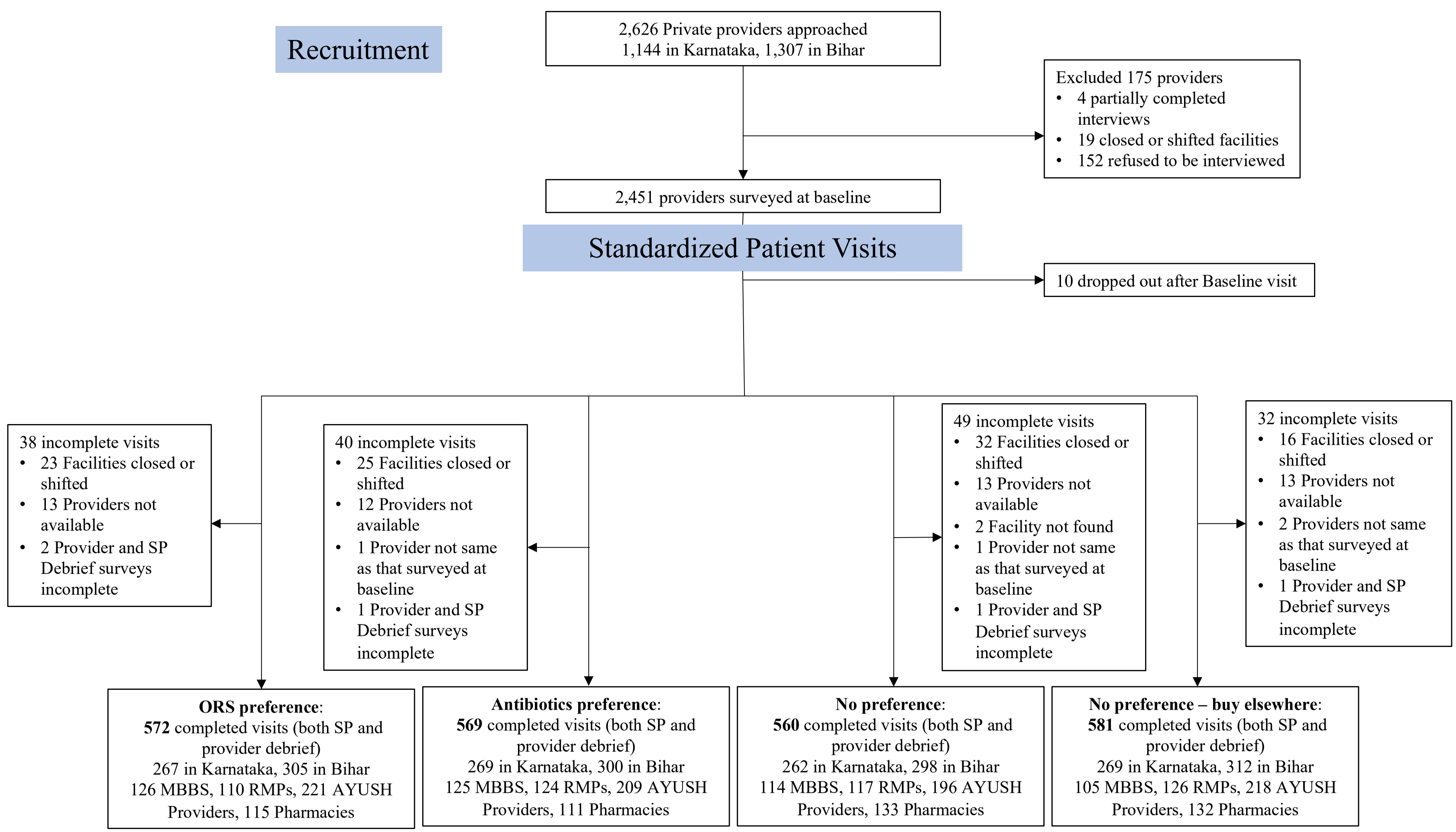
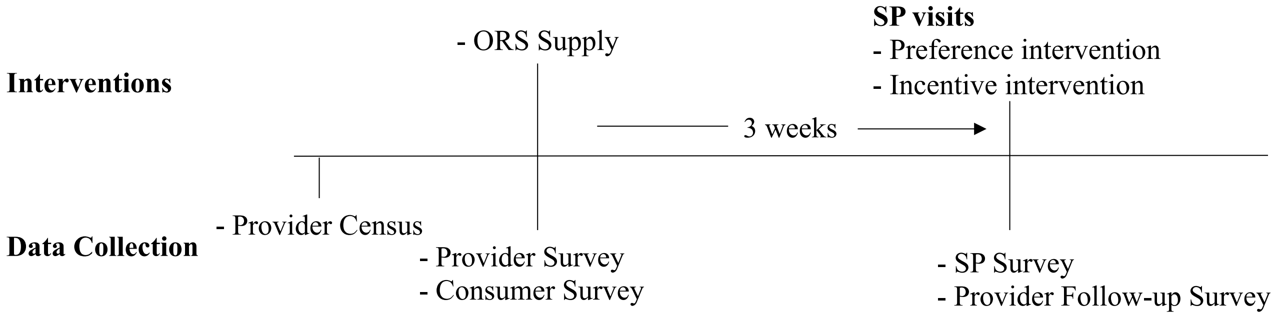


Figure S5: Study Timeline



Appendix Tables

Table S1: Provider characteristics at baseline

Variables	Pooled (N=2282)	Karnataka (N=1067)	Bihar (N=1215)
Demographics			
Age	44.4	43.6	45.1
Male	0.92	0.84	0.98
Knowledge/Experience			
Years of experience	18.5	17.2	19.6
Knows ORS is Correct treatment[1]	0.86	0.89	0.83
Provider type			
MBBS[2]	0.20	0.30	0.12
RMP[3]	0.21	0.03	0.37
AYUSH[4]	0.37	0.44	0.31
Pharmacy	0.22	0.23	0.21
Patient volume			
Patients per day	24.7	35.5	15.2
Diarrhea case per week	6.26	8.25	4.51
Facility characteristics			
Number of beds	2.06	2.30	1.87
Consultation Fee[5]	90.1	84.9	94.5
Dispenses medications	0.55	0.40	0.68
ORS available at baseline	0.52	0.56	0.50

Notes: Data was collected prior to the standardized patient visit during the baseline provider survey

[1] *Knows ORS is Correct treatment* is the average of two dummy variables which record whether the provider correctly prescribed ORS when asked to treat a case of diarrhea during the vignette section of the provider survey

[2] MBBS stands for Bachelor of Medicine, Bachelor of Surgery and is the medical degree awarded to undergraduates in Indian medical schools

[3] RMP is an acronym for Registered Medical Practitioner

[4] AYUSH is an acronym for Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy

[5] *Consultation Fee* typically includes any fees paid for medicine for a registered medical practitioner (RMP)

Source: Baseline provider survey

Table S2: Characteristics of caretakers who recently sought care for child's diarrhea in our study setting

	N = 1200
Sought care private clinic	57.3%
Sought care private pharmacy	31.0%
Sought care public sector	9.2%
Share that received ORS (private sector)	42.4%
Share that received antibiotics (private sector)	48.6%

Notes: Data are from caretaker surveys in the areas surrounding the town from which we sampled providers. All caretakers had sought care for a case of child diarrhea in the previous 4-weeks. 3% of caretakers reported seeking care from a traditional healer, faith-based organization, or from friends/relatives.

Table S3: Prescribing in no-preference control group by provider type

	Pooled (N = 275)	MBBS (N = 60)	RMP (N = 64)	AYUSH (N = 91)	Pharmacy (N = 60)
Prescribed/dispensed ORS	0.276	0.433	0.312	0.220	0.167
Prescribed/dispensed Antibiotics	0.691	0.650	0.922	0.516	0.750
Prescribed/dispensed Zinc	0.091	0.200	0.141	0.033	0.017
Prescribed/dispensed ORS+Zinc	0.047	0.100	0.078	0.022	0.000
Directly dispensed any medicines	0.476	0.217	0.484	0.407	0.833
Number of medicines prescribed/dispensed	1.800	2.100	2.156	1.659	1.333
Cost of visit	115.843	175.386	98.302	121.529	66.339
Time spent with provider	4.185	4.400	4.391	4.429	3.383

Notes: Data was recorded from standardized patient (SP) visits from SPs who showed no treatment preference and providers who did not receive ORS supply. Provider types were recorded in the baseline provider survey.

Table S4: Balance table of provider characteristics at baseline across SP-types

Variables	No Preference (N=571)	Ask for ORS (N=562)	Ask for antibiotics (N=570)	Purchase elsewhere (N=579)	p-value of joint test for orthogonality
Demographics					
Age	44.2	44.3	45.0	44.0	0.67
Male	0.91	0.91	0.92	0.92	0.89
Knowledge/Experience					
Years of experience	18.3	18.7	18.7	18.2	0.87
Knows ORS is Correct treatment[1]	0.86	0.86	0.85	0.87	0.66
Provider type					
MBBS[2]	0.19	0.22	0.22	0.18	0.36
RMP[3]	0.21	0.19	0.22	0.22	0.71
AYUSH[4]	0.35	0.39	0.37	0.38	0.61
Pharmacy	0.24	0.21	0.20	0.22	0.35
Patient volume					
Patients per day	24.0	24.5	24.8	25.4	0.73
Diarrhea case per week	1.72	1.83	3.63	3.49	0.22
Facility characteristics					
Number of beds	2.06	2.01	2.12	2.06	0.95
Consultation Fee[5]	91.9	90.8	87.6	90.1	0.90
Dispenses medications	0.56	0.53	0.54	0.56	0.72
ORS available at baseline	0.52	0.52	0.53	0.52	0.99

Notes: Data was collected prior to the standardized patient visit during the baseline provider survey
[1] *Knows ORS is Correct treatment* is the average of two dummy variables which record whether the provider correctly prescribed ORS when asked to treat a case of diarrhea during the vignette section of the provider survey
[2] MBBS is a Bachelor of Medicine, Bachelor of Science degree is the medical degree awarded to undergraduates in Indian medical schools
[3] RMP is an acronym for Registered Medical Practitioner
[4] AYUSH is an acronym for Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy
[5] *Consultation Fee* typically includes any fees paid for medicine for a registered medical practitioner (RMP)
Source: Baseline provider survey Source: Baseline provider survey

Table S5: Balance table of provider characteristics at baseline across ORS supply intervention arms

Variables	Status Quo ORS Supply (N=1139)	Free ORS Supply (N=1143)	p-value
Demographics			
Age	44.3	44.5	0.70
Male	0.92	0.91	0.38
Knowledge/Experience			
Years of experience	18.7	18.2	0.31
Knows ORS is Correct treatment[1]	0.85	0.87	0.21
Provider type			
MBBS[2]	0.21	0.20	0.61
RMP[3]	0.22	0.20	0.15
AYUSH[4]	0.36	0.38	0.25
Pharmacy	0.22	0.22	0.83
Patient volume			
Patients per day	24.0	25.4	0.11
Diarrhea case per week	1.56	3.79	0.01
Facility characteristics			
Number of beds	2.08	2.05	0.85
Consultation Fee[5]	89.8	90.3	0.90
Dispenses medications	0.55	0.54	0.59
ORS available at baseline	0.52	0.53	0.85

Notes: Data was collected prior to the standardized patient visit during the baseline provider survey

[1] *Knows ORS is Correct treatment* is the average of two dummy variables which record whether the provider correctly prescribed ORS when asked to treat a case of diarrhea during the vignette section of the provider survey

[2] MBBS is a Bachelor of Medicine, Bachelor of Science degree is the medical degree awarded to undergraduates in Indian medical schools

[3] RMP is an acronym for Registered Medical Practitioner

[4] AYUSH is an acronym for Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy

[5] *Consultation Fee* typically includes any fees paid for medicine for a registered medical practitioner (RMP)

Source: Baseline provider survey

Table S6: Effect of patient preferences by provider type

	ORS Preference vs. No Preference			
	MBBS	RMP	AYUSH	Pharmacy
	N=240	N=227	N=417	N=248
Effect on ORS prescribing/dispensing	0.089	0.411***	0.188***	0.473***
Standard Error	(0.067)	(0.062)	(0.049)	(0.056)
No-Preference Mean	0.395	0.316	0.255	0.188
Effect on Antibiotics prescribing/dispensing	-0.094	-0.077*	-0.035	-0.191***
Standard Error	(0.061)	(0.043)	(0.060)	(0.060)
No-Preference Mean	0.649	0.932	0.546	0.782
	Antibiotics Preference vs. No Preference			
	MBBS	RMP	AYUSH	Pharmacy
	N=239	N=241	N=405	N=244
Effect on ORS prescribing/dispensing	-0.035	0.039	-0.025	-0.017
Standard Error	(0.061)	(0.052)	(0.040)	(0.051)
No-Preference Mean	0.395	0.316	0.255	0.188
Effect on Antibiotics prescribing/dispensing	0.047	0.012	0.143***	0.065
Standard Error	(0.059)	(0.030)	(0.045)	(0.045)
No-Preference Mean	0.649	0.932	0.546	0.782

Notes: Treatment effects were estimated using linear regressions sub-setting on each business type. Standard errors are clustered by town. Differences in effects of ORS preferences on ORS prescribing/dispensing between pharmacies and MBBS providers and RMPs and MBBS providers are statistically significant ($p<0.01$) in models that interact provider type with SP preference assignment. No other differences in effects are statistically significant. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table S7: Effect of patient preferences by State

ORS Preference vs. No Preference		
	Bihar	Karnataka
	N=603	N=529
Effect on ORS prescribing/dispensing	0.304***	0.232***
Standard Error	(0.040)	(0.041)
No-Preference Mean	0.336	0.218
Effect on Antibiotics prescribing/dispensing	-0.106***	-0.094**
Standard Error	(0.034)	(0.042)
No-Preference Mean	0.765	0.634
Antibiotics Preference vs. No Preference		
	Bihar	Karnataka
	N=598	N=531
Effect on ORS prescribing/dispensing	-0.002	-0.009
Standard Error	(0.036)	(0.033)
No-Preference Mean	0.336	0.218
Effect on Antibiotics prescribing/dispensing	0.045	0.106***
Standard Error	(0.030)	(0.036)
No-Preference Mean	0.765	0.634

Notes: Treatment effects were estimated using linear regressions subsetting on each state. Standard errors are clustered by town. The mean of the no-preference group is in brackets. No differences in effects between states were statistically significant when we interact SP preference assignment with state.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table S8: Effect of patient preferences by case severity

ORS Preference vs. No Preference		
	Less Severe	More Severe
	N=561	N=571
Effect on ORS prescribing/dispensing	0.256***	0.284***
Standard Error	(0.041)	(0.040)
No-Preference Mean	0.265	0.295
Effect on Antibiotics prescribing/dispensing	-0.061	-0.139***
Standard Error	(0.039)	(0.040)
No-Preference Mean	0.692	0.715
Antibiotics Preference vs. No Preference		
	Less Severe	More Severe
	N=563	N=566
Effect on ORS prescribing/dispensing	0.009	-0.022
Standard Error	(0.035)	(0.038)
No-Preference Mean	0.265	0.295
Effect on Antibiotics prescribing/dispensing	0.090***	0.057*
Standard Error	(0.033)	(0.033)
No-Preference Mean	0.692	0.715

Notes: Treatment effects were estimated using linear regressions subsetting on each business type. Standard errors are clustered by town. The mean of the no-preference group is in brackets. Differences in effects were not statistically significant for any outcome.
*** p<0.01, ** p<0.05, * p<0.1

Table S9: Effect of provider financial incentives on prescribing for child diarrhea by provider type

All Providers			*Treatment Effect*	
	Purchase from Provider	Purchase elsewhere	No Controls	Controls
	N=560	N=581		
Prescribed/Dispensed ORS	0.280	0.313	0.033	0.033
			(0.025)	(0.025)
Prescribed/Dispensed Antibiotics	0.704	0.683	-0.020	-0.026
			(0.026)	(0.026)
Pharmacies			*Treatment Effect*	
	Purchase from Provider	Purchase elsewhere	No Controls	Controls
	N=137	N=135		
Prescribed/Dispensed ORS	0.182	0.272	0.090**	0.091**
			(0.045)	(0.045)
Prescribed/Dispensed Antibiotics	0.781	0.772	-0.009	-0.015
			(0.049)	(0.050)
Rural Medical Providers			*Treatment Effect*	
	Purchase from Provider	Purchase elsewhere	No Controls	Controls
	N=114	N=122		
Prescribed/Dispensed ORS	0.325	0.459	0.134	0.129*
			(0.064)	(0.065)
Prescribed/Dispensed Antibiotics	0.930	0.869	-0.061	-0.064
			(0.040)	(0.040)
AYUSH Providers			*Treatment Effect*	
	Purchase from Provider	Purchase elsewhere	No Controls	Controls
	N=195	N=218		
Prescribed/Dispensed ORS	0.256	0.257	0.000	0.002
			(0.042)	(0.042)
Prescribed/Dispensed Antibiotics	0.549	0.610	0.061	0.051
			(0.049)	(0.046)
MBBS Providers			*Treatment Effect*	
	Purchase from Provider	Purchase elsewhere	No Controls	Controls
	N=114	N=105		
Prescribed/Dispensed ORS	0.395	0.314	-0.080	-0.073
			(0.064)	(0.062)
Prescribed/Dispensed Antibiotics	0.649	0.505	-0.144	-0.148**
			(0.065)	(0.065)

Notes: Data on prescribing is from surveys completed by standardized patients after a visit with the provider. Treatment effects were estimated using linear regression with standard errors clustered by town. Controls column includes the severity of the case, whether the provider received free ORS supply, providers' training, if the provider dispenses medicines, if the provider knew ORS was the correct treatment at baseline, providers age and gender, number patients per day, number of diarrhea cases per week, years of experience, and whether the provider had ORS in stock at baseline. Standard errors, clustered by town, are in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table S10: Effect of incentives by state

Purchase Elsewhere vs. Purchase from Provider

All Providers

	Bihar	Karnataka
	N=610	N=531
Effect on ORS prescribing/dispensing	0.027	0.039
Standard Error	(0.036)	(0.036)
Purchase From Provider Mean	0.336	0.218
Effect on Antibiotics prescribing/dispensing	-0.034	-0.005
Standard Error	(0.034)	(0.041)
Purchase From Provider Mean	0.765	0.634

Pharmacies Only

	Bihar	Karnataka
	N=134	N=133
Effect on ORS prescribing/dispensing	0.088	0.110
Standard Error	(0.070)	(0.059)
Purchase From Provider Mean	0.231	0.129
Effect on Antibiotics prescribing/dispensing	0.033	-0.056
Standard Error	(0.042)	(0.086)
Purchase From Provider Mean	0.923	0.643

Notes: Treatment effects were estimated using linear regressions sub-setting on each business type. Standard errors were clustered by town. The mean of the no-preference group is in brackets. No differences in effects between states were statistically significant.
*** p<0.01, ** p<0.05, * p<0.1

Table S11: Effect of incentives by case severity

Purchase Elsewhere vs. Purchase from Provider

All Providers

	Less Severe	More Severe
	N=319	N=320
Effect on ORS prescribing/dispensing	0.052	0.015
Standard Error	(0.046)	(0.052)
Purchase From Provider Mean	0.228	0.283
Effect on Antibiotics prescribing/dispensing	-0.004	-0.024
Standard Error	(0.050)	(0.049)
Purchase From Provider Mean	0.660	0.750

Pharmacies Only

	Less Severe	More Severe
	N=134	N=133
Effect on ORS prescribing/dispensing	0.065	0.130
Standard Error	(0.063)	(0.073)
Purchase From Provider Mean	0.164	0.194
Effect on Antibiotics prescribing/dispensing	-0.018	0.008
Standard Error	(0.075)	(0.069)
Purchase From Provider Mean	0.740	0.823

Notes: Treatment effects were estimated using linear regressions subsetting on each business type. Standard errors were clustered by town. The mean of the no-preference group is in brackets. No differences in effects between states were statistically significant.
*** p<0.01, ** p<0.05, * p<0.1

Table S12: Effect of ORS supply on prescribing for child diarrhea by provider type

	Control	Given Supply	Effect of Supply Intervention	Effect of ORS In-Stock
Pharmacies				
	N=247	N=258		
ORS in stock at follow-up	0.947	0.977	0.029	
			(0.019)	
Dispensed ORS	0.225	0.217	-0.008	-0.329
			(0.033)	(1.136)
Prescribed/Dispensed ORS	0.333	0.314	-0.019	-0.614
			(0.043)	(1.511)
Rural Medical Providers				
	N=247	N=215		
ORS in stock at follow-up	0.470	0.823	0.354***	
			(0.053)	
Dispensed ORS	0.152	0.214	0.062	0.170
			(0.038)	(0.105)
Prescribed/Dispensed ORS	0.456	0.460	0.004	-0.003
			(0.055)	(0.154)
AYUSH Providers				
	N=407	N=432		
ORS in stock at follow-up	0.177	0.833	0.656***	
			(0.036)	
Dispensed ORS	0.051	0.118	0.066***	0.101***
			(0.021)	(0.032)
Prescribed/Dispensed ORS	0.240	0.351	0.111***	0.173***
			(0.034)	(0.053)
MBBS Providers				
	N=228	N=237		
ORS in stock at follow-up	0.263	0.730	0.467***	
			(0.057)	
Dispensed ORS	0.082	0.046	-0.035	-0.070
			(0.025)	(0.054)
Prescribed/Dispensed ORS	0.431	0.350	-0.081*	-0.171
			(0.044)	(0.096)

Notes: Data on prescribing and dispensing is from surveys completed by standardized patients after a visit with the provider. Data on ORS stock is from follow-up provider surveys completed on same day as SP visit. Effect of supply intervention was estimated using linear regression with standard errors clustered by town. Effect of ORS in-stock was estimated using two-stage least squares regression with random assignment as an instrument for having ORS in stock. Standard errors in parentheses are clustered by town. *** p<0.01, ** p<0.05, * p<0.1

Table S13: Effect of ORS supply on prescribing for child diarrhea (sensitivity to including pharmacies)

	Control	Given Supply	Effect of Supply Intervention	Effect of ORS In-Stock
All Providers That Sell Medicines (Including Pharmacies)				
	Control	Given Supply	Effect of Supply Intervention	Effect of ORS In-Stock
	N=1129	N=1142		
ORS in stock at follow-up	0.427	0.842	0.415***	
			(0.028)	
Dispensed ORS	0.118	0.143	0.026	0.062*
			(0.016)	(0.038)
Prescribed/Dispensed ORS	0.347	0.363	0.016	0.041
			(0.026)	(0.063)
Clinics that Sell Medicines (excluding pharmacies)				
	Control	Given Supply	Effect of Supply Intervention	Effect of ORS In-Stock
	N=385	N=370		
ORS in stock at follow-up	0.382	0.881	0.499***	
			(0.042)	
Dispensed ORS	0.111	0.195	0.083***	0.166***
			(0.029)	(0.057)
Prescribed/Dispensed ORS	0.319	0.400	0.081**	0.161**
			(0.040)	(0.078)
Pharmacies Only				
	Control	Given Supply	Effect of Supply Intervention	Effect of ORS In-Stock
	N=244	N=251		
ORS in stock at follow-up	0.951	0.980	0.029	
			(0.019)	
Dispensed ORS	0.228	0.219	-0.009	-0.355
			(0.033)	(1.153)
Prescribed/Dispensed ORS	0.337	0.319	-0.019	-0.593
			(0.044)	(1.522)

Notes: Controls column includes the severity of the case, the role the standardized patient played, providers' training, if the provider dispenses medicines, if the provider knew ORS was the correct treatment at baseline, providers age and gender, number patients per day, number of diarrhea cases per week, years of experience, and whether the provider had ORS in stock at baseline. Robust standard errors are in parentheses. Standard errors in parentheses are clustered by town.

Table S14: Effect of ORS supply on ORS dispensing (Bihar)

	Control	Given Supply	Effect of Supply Intervention	Effect of ORS In-Stock
All Clinics				
	N=492	N=468		
ORS in stock at follow-up	0.295	0.776	0.481***	
			(0.041)	
Dispensed ORS	0.115	0.194	0.080***	0.163***
			(0.027)	(0.053)
Prescribed/Dispensed ORS	0.387	0.466	0.079*	0.157*
			(0.042)	(0.085)
Clinics that Sell Medicines				
	Control	Given Supply	Effect of Supply Intervention	Effect of ORS In-Stock
	N=295	N=278		
ORS in stock at follow-up	0.356	0.867	0.511***	
			(0.046)	
Dispensed ORS	0.132	0.248	0.116***	0.227***
			(0.034)	(0.065)
Prescribed/Dispensed ORS	0.334	0.442	0.108**	0.209**
			(0.047)	(0.087)
Clinics the Do Not Sell Medicines				
	Control	Given Supply	Effect of Supply Intervention	Effect of ORS In-Stock
	N=197	N=190		
ORS in stock at follow-up	0.203	0.642	0.439***	
			(0.057)	
Dispensed ORS	0.090	0.116	0.026	0.056
			(0.037)	(0.083)
Prescribed/Dispensed ORS	0.465	0.500	0.035	0.064
			(0.056)	(0.127)

Notes: Controls column includes the severity of the case, the role the standardized patient played, providers' training, if the provider dispenses medicines, if the provider knew ORS was the correct treatment at baseline, providers age and gender, number patients per day, number of diarrhea cases per week, years of experience, and whether the provider had ORS in stock at baseline. Robust standard errors are in parentheses. Standard errors in parentheses are clustered by town.

Table S15: Effect of ORS supply on ORS dispensing (Karnataka)

	All Clinics			
	Control	Given Supply	Effect of Supply Intervention	Effect of ORS In-Stock
	N=393	N=423		
ORS in stock at follow-up	0.267	0.835	0.567***	
			(0.052)	
Dispensed ORS	0.053	0.042	-0.010	-0.015
			(0.013)	(0.023)
Prescribed/Dispensed ORS	0.302	0.276	-0.026	-0.037
			(0.034)	(0.060)
	Clinics that Sell Medicines			
	Control	Given Supply	Effect of Supply Intervention	Effect of ORS In-Stock
	N=90	N=92		
ORS in stock at follow-up	0.467	0.924	0.457***	
			(0.094)	
Dispensed ORS	0.044	0.033	-0.012	-0.026
			(0.026)	(0.056)
Prescribed/Dispensed ORS	0.267	0.272	0.005	0.011
			(0.069)	(0.149)
	Clinics the Do Not Sell Medicines			
	Control	Given Supply	Effect of Supply Intervention	Effect of ORS In-Stock
	N=304	N=331		
ORS in stock at follow-up	0.211	0.810	0.599***	
			(0.048)	
Dispensed ORS	0.055	0.045	-0.010	-0.012
			(0.016)	(0.027)
Prescribed/Dispensed ORS	0.312	0.277	-0.035	-0.047
			(0.039)	(0.066)

Notes: Controls column includes the severity of the case, the role the standardized patient played, providers' training, if the provider dispenses medicines, if the provider knew ORS was the correct treatment at baseline, providers age and gender, number patients per day, number of diarrhea cases per week, years of experience, and whether the provider had ORS in stock at baseline. Robust standard errors are in parentheses. Standard errors in parentheses are clustered by town.

Table S16: Effect of patient preferences by whether provider received free ORS

	ORS Preference vs. No Preference	
	Assigned ORS Supply	Not Assigned ORS Supply
	N=567	N=565
Effect on ORS prescribing/dispensing	0.301***	0.241***
Standard Error	(0.039)	(0.042)
No-Preference Mean	0.284	0.276
Effect on Antibiotics prescribing/dispensing	-0.095**	-0.105***
Standard Error	(0.037)	(0.039)
No-Preference Mean	0.716	0.691
	Antibiotics Preference vs. No Preference	
	Assigned ORS Supply	Not Assigned ORS Supply
	N=574	N=555
Effect on ORS prescribing/dispensing	-0.039	0.027
Standard Error	(0.035)	(0.035)
No-Preference Mean	0.284	0.276
Effect on Antibiotics prescribing/dispensing	0.039	0.109***
Standard Error	(0.034)	(0.032)
No-Preference Mean	0.716	0.691

Notes: Treatment effects were estimated using linear regressions. Standard errors were clustered by town. The mean of the no-preference group is in brackets. Differences in effects were not statistically significant for any outcome.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table S17: Effect of ORS supply on ORS dispensing by whether standardized patient showed ORS preference

	ORS Preference			
	Control	Given Supply	Effect of Supply Intervention	Effect of ORS In-Stock
	N=100	N=87		
ORS in stock at follow-up	0.350	0.920	0.570***	
			(0.054)	
Dispensed ORS	0.220	0.368	0.148**	0.260**
			(0.073)	(0.122)
Prescribed/Dispensed ORS	0.460	0.575	0.115	0.201
			(0.079)	(0.134)
	No ORS Preference			
	Control	Given Supply	Effect of Supply Intervention	Effect of ORS In-Stock
	N=285	N=283		
ORS in stock at follow-up	0.393	0.869	0.476***	
			(0.047)	
Dispensed ORS	0.073	0.141	0.068**	0.142**
			(0.027)	(0.056)
Prescribed/Dispensed ORS	0.269	0.346	0.077*	0.160*
			(0.045)	(0.091)

Notes: Treatment effects were estimated using linear regressions. Standard errors were clustered by town. The mean of the no-preference group is in brackets. Differences in effects were not statistically significant for any outcome.

Table S18: Study design and sample size by arm

	Standardized Patient Arms				
			No Preference		
	Prefer ORS	Prefer Antibiotic	Purchase From Provider	Purchase Elsewhere	Total
ORS Supply	282	289	285	287	1143
Control	290	280	275	294	1139
Total	572	569	560	581	2282

Notes: Prefer ORS/Antibiotic means that SPs showed a preference for the respective treatment when they started the visit with the provider. ORS supply/Control indicates the assignment for the ORS supply intervention.

Table S19: Interactions with provider by standardized patient role

	ORS Preference (N = 572)	Antibiotics Preference (N = 569)	No Preference (purchase) (N = 560)	No Preference (no purchase) (N = 581)
Time spent with provider (minutes)	4.3	4.3	4.4	4.2
Number of questions asked	5.1	5.0	5.1	5.1
Number of essential questions asked	2.7	2.6	2.7	2.7

Notes: Data was recorded from standardized patient (SP) visits. Essential questions include whether there was blood in the stool, quality of stool, frequency of diarrhea, duration of symptoms, whether there was a concurrent fever, and whether the child was vomiting.

Table S20: Opening statements of SP Arms

SP Type	Opening Statement
ORS Preference	Doctor, my child has been suffering from diarrhea for the last two days. I have heard that we can use a salt and sugar powder in a packet. This is what I used last time but I don't have any left-over (show picture of empty ORS packet). Can I just use this again?
Antibiotics Preference	Doctor, my child has been suffering from diarrhea for the last two days. This is what I used last time but I don't have any left-over at home [show picture of antibiotic]. Can I just use this again?
No Preference (purchase from provider)	Doctor, my child has been suffering from diarrhea for the last two days. What treatments do you recommend for him?
No preference (purchase elsewhere)	Doctor, my child has been suffering from diarrhea for the last two days. I am here for work and will only be back to my village after a couple of days.But if you can suggest some medication, I can get it sent home from the local pharmacy. What do you recommend?

Table S21: Parameters for Estimating Market Share Adjusted Effects

	Effect of ORS preferences	Effect of financial incentives	Effect of having ORS in-stock	Market Share
MBBS	0.09	-0.08	-0.22	0.24
RMPs	0.40	0.13	0.05	0.12
AYUSH	0.18	0.00	0.36	0.29
Pharmacies	0.49	0.09	0.00	0.35
Market Share Adjusted Effect	0.29	0.03	0.06	

Notes: Effects were estimated from Tables S6, S9, S12. Market shares were estimated from caretaker surveys. Market share adjusted effects were estimated using equation 1.