

Comprehensive report on the treatment of childhood diarrhea in Nigeria

Results from market research on caregiver and provider knowledge and behaviors

June 2014



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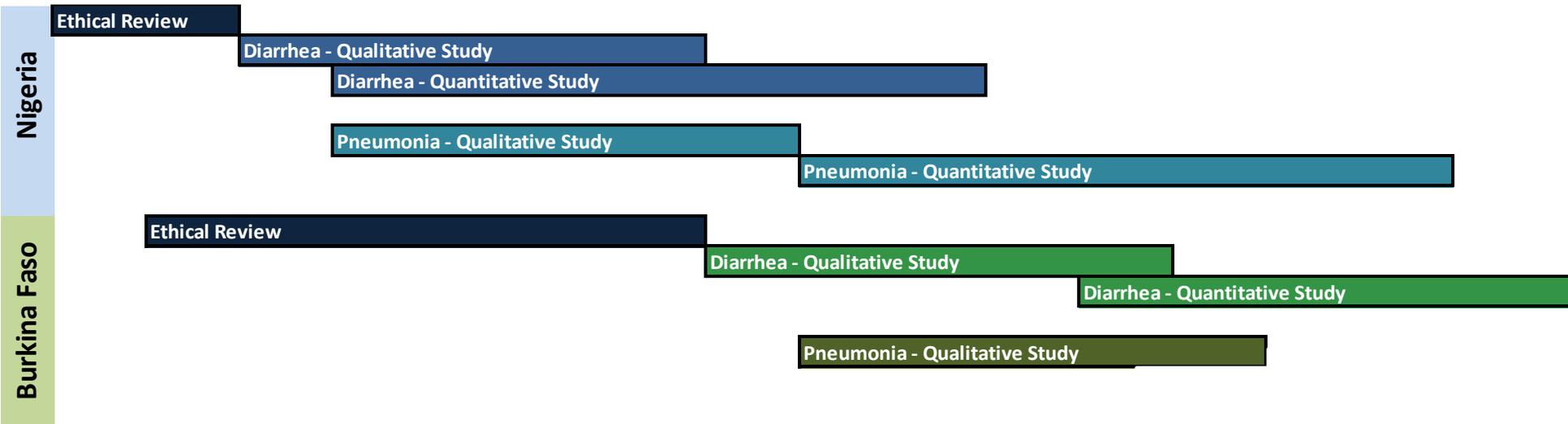
Acronyms

CHW	Community health worker
DHS	Demographic health survey
HCP	Health care provider
HSSS	Homemade sugar-salt solution
IDI	In-depth interview
NAPPMED	National Association of Proprietary Patent Medicines Dealers
ORS	Oral rehydration solution
PPMV	Patent and proprietary medical vendor
SEC	Socioeconomic class

Definitions

Caregiver	A parent, relative, or other person who may seek advice about treating diarrhea for a child and is responsible for administering treatments to alleviate the illness.
Community health worker	<p>There are two types of CHWs in Nigeria:</p> <ul style="list-style-type: none"> • Those that work for nongovernmental organizations. • Those that work in community health centers that are run by local governments. In our research we talked to those who work with government. <p>The CHWs we surveyed are <u>paid</u> by the local governments.</p> <p>They are mostly facility-based, however, they go into the communities sometimes, especially during immunization periods.</p> <p>They do not have labs for doing tests in these facilities.</p> <p>They make referrals to hospitals. In Nigeria, some medical practitioners work in public as well as private hospitals. It may be possible that some CHWs do the same.</p>
ORS user	A person who used ORS to treat a child during the last episode of diarrhea.
ORS non-user	A person who did not use ORS to treat a child during the last episode of diarrhea.
Provider	A doctor, nurse, CHW, pharmacist, PPMV, or any other suitably qualified person who may provide guidance about treating diarrhea and/or supply treatments for diarrhea.
SECs	<p>A: Upper upper class – well educated (often abroad); annual income at least NGN 10 million; many household appliances.</p> <p>B: Lower upper class – well educated; annual income of ~NGN 5 million; many household appliances.</p> <p>C1: Upper middle class – well educated; annual income of ~NGN 2 million; some household appliances.</p> <p>C2: Lower middle class – generally educated; annual income of ~NGN 0.6 million, few household appliances.</p> <p>D and E: Lower class and lower lower class – live in urban, densely populated areas or rural areas; no steady source of income; little access to clean water and power supply.</p>

Overview of PATH's West Africa market research



Enclosed report covers findings from PATH's diarrhea market research in Nigeria. An upcoming report will cover the diarrhea research in Burkina Faso.

Research objectives

Diarrhea

- Characterize **perceptions** of the severity of diarrhea among caregivers and their **behaviors related to diarrhea**, including dietary adjustment, advice sought, care-seeking, treatment used, treatment sequencing , and duration of treatment.
- **Gain understanding of attitudes and behaviors surrounding ORS and antibiotics**, specifically around coverage, cost, availability, and caregiver and provider attitudes toward the products, as well as perceptions of novel product presentations.
- Gain insight around **provider treatment behavior**.

Research methodology

Diarrhea

Stage 1 Qualitative Study	Exploratory research via group discussions and IDIs with caregivers and providers. <i>(Discussion guides were pretested and refined prior to commencement of main qualitative stage.)</i>
Stage 2 Quantitative Study	<p>A representative face-to-face survey of 800 caregivers and 250 providers; approximately 45–60 minutes in length.</p> <p>Caregiver criteria: Caregiver for child between 6 months and 5 years of age with diarrhea lasting 2 days or more in the last 2 months. <i>(Questionnaires were pretested and refined prior to commencement of the main quantitative stage.)</i></p>

State selection



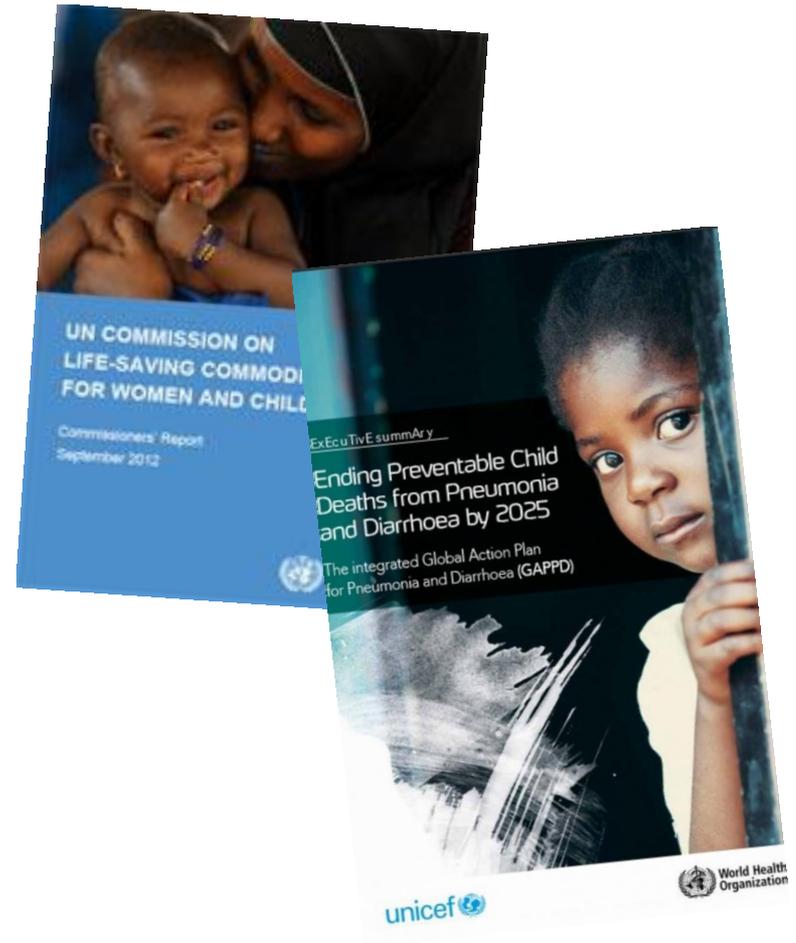
The research was conducted across the seven circled states in this map of Nigeria.

State selection aimed for country-wide representation and thus was based on:

- Geographic disbursement.
- Disease burden.
- Main religious groups.
- Top three languages.
- Socioeconomic classes.
- Rural/urban environments.
- Partner and donor activities/investments.

Overview of diarrhea in Nigeria

- Nigeria ranks third globally in absolute number of diarrheal deaths (IHME GBD 2010).
- History of HSSS promotion.
- 2008 DHS indicates 66% of women aware of ORS, 26% use ORS.
- Prior caregiver research on diarrhea treatment conducted a decade ago.
- Extensive demand-generation efforts planned.



Qualitative research sample size

Health care providers	Number of interviews
Patent and proprietary medical vendors (PPMVs)	30
Clinic health care workers	15
Community health care workers (CHWs)	10
Hospital health care workers	10
Registered pharmacists	10
Subtotal	75
Caregivers	
Focus group discussions (6–8 participants)	4
In-depth interviews (IDIs)	30
Subtotal	34
Qualitative total	109

The caregiver interviews consisted of focus group discussions (6–8 participants) and IDIs. In the majority of cases, the caregiver was the mother of the sick child.

- All aware of ORS.
- ORS users 50% : ORS non-users 50% (user is ever used ORS sachet and non-user is never used ORS sachet . . . but may have used HSSS)
- Muslims 50% : non-Muslims 50%.
- Socioeconomic class – half B or C1; half C2 or D.

All have at least one child aged between 6 months and 5 years who has suffered from diarrhea that lasted for more than 2 days in the last 2 months.

Quantitative research demographics

Caregivers

	Urban	Rural	TOTAL
Lagos	163	17	180
Abuja	40	40	80
Katsina	41	99	140
Enugu	64	16	80
Bauchi	22	88	110
Rivers	63	67	130
Ondo	40	40	80
TOTAL	433	367	800

Health care providers

	Public doctor/ nurse	Private doctor/ nurse	CHW	Pharmacist	PPMV	All providers
Lagos	6	6	8	6	10	36
Abuja	6	5	8	6	10	35
Katsina	6	6	9	6	10	37
Enugu	5	5	8	6	10	34
Bauchi	6	6	9	5	10	36
Rivers	6	6	8	6	10	36
Ondo	6	6	9	5	10	36
TOTAL	41	41	60	41	70	253

Sampling distribution among states and rural/urban split were selected by the Ipsos Nigeria team based on data from the National Bureau of Statistics, 2011.

Quantitative research demographics (cont.)

	Base	800 %
AGE OF CAREGIVER	18–20	5
	21–24	17
	25–29	30
	30–34	27
	35–39	16
	40–44	4
	45+	1

WORKING STATUS	Not working	38
	Working full-time	39
	Working part-time	18
	Unemployed looking for work	5

SEC	A	*
	B	*
	C1	4
	C2	25
	D	62
	E	8

SETTING	Urban	54
	Rural	46

	Base	800 %
RELIGION	Christian	61
	Muslim	39

PRIMARY LANGUAGE	English	12
	Yoruba	27
	Igbo	21
	Hausa	28
	Pidgin	3
Other	10	

LOCATION	Lagos	22
	Abuja	10
	Katsina	18
	Enugu	10
	Bauchi	14
	Rivers	16
	Ondo	10

Quantitative research demographics (cont.)

		Lagos	Abuja	Katsina	Enugu	Bauchi	Rivers	Ondo
SETTING	Base	180	80	140	80	110	130	80
		%	%	%	%	%	%	%
	Urban	91	50	29	80	20	48	50
	Rural	9	50	71	20	80	52	50
WORKING STATUS	Not working	17	18	90	26	64	18	21
	Working full-time	68	44	2	52	11	54	36
	Working part-time	12	36	4	19	18	22	32
	Unemployed looking for work	3	2	4	2	7	5	10
SEC	A	-	-	-	4	-	-	-
	B	-	1	-	4	-	-	-
	C1	4	9	-	4	3	5	-
	C2	32	39	19	30	17	32	4
	D	62	50	64	56	59	61	88
RELIGION	E	2	1	18	2	21	2	9
	Christian	62	76	1	100	27	99	89
	Muslim	38	24	99	-	73	1	11
PRIMARY LANGUAGE	English	15	4	1	8	4	40	-
	Yoruba	72	22	1	2	-	2	78
	Igbo	7	31	1	90	11	32	-
	Hausa	1	16	95	-	67	2	-
	Pidgin	2	8	1	-	-	10	1
	Other	3	19	1	-	18	15	21

EXECUTIVE SUMMARY

Very few children were admitted to the hospital during the last episode

	TOTAL
<i>Base: All caregivers</i>	<i>(800)</i>
	%
<i>Was your child admitted into a hospital for the treatment of this episode of diarrhea?</i>	
YES	4
NO	96
<i>Base: All caregivers where child admitted to hospital</i>	<i>(31)</i>
	%
1 day	16
2 days	26
3 days	23
4 days	16
5 days	3
6 days	6
7 days or longer	10

ORS indicators

Awareness

ORS awareness	91%
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Treatment use

ORS use (ever)	72%
ORS use during the last diarrhea episode	65%
ORS and zinc use in last diarrhea episode	1.7%
Average length of time after the episode started when ORS given	1.7 days
Average length of time of ORS administration during last episode	3 days

Dosing

Average number of ORS sachets administered during the last episode	2.3
Average volume of ORS given per day to children aged under 2 years/2–5 years	652 ml/808 ml

Care-seeking

Care-seeking within 48 hours of start of episode	83%
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PERCEPTIONS OF DIARRHEA AND ILLNESS IDENTIFICATION

Perceptions of diarrhea and illness identification

- Overall, 82% of caregivers believe **diarrhea is a high-risk illness** (with the **potential** to lead to death).
- For the majority of caregivers (in both urban and rural locations), **severity is determined by the child's ability to eat or drink**. Diarrhea is also regarded as serious when the child is seen to be very weak and has lost weight.
- **Dehydration appears to be understood**. 72% of caregivers understand that the child needs fluids (consistent across socioeconomic classes).
- Health professionals feel that **good sanitation has not been fully grasped** by caregivers playing a vital role in the cause of diarrhea.
- **Variety of terms used for diarrhea** depending on region. “My child is stooling” is most common.

Diarrhea is widely considered a high-risk illness

Although majority think diarrhea is a high-risk illness, more caregivers (about one in three) in Lagos and Ondo are likely to say it is a low-risk illness

		TOTAL	Lagos	Abuja	Katsina	Enugu	Bauchi	Rivers	Ondo
DIARRHEA	<i>Base</i>	800	180	80	140	80	110	130	80
		%	%	%	%	%	%	%	%
	High risk of child becoming seriously ill and possibly dying	82	68	85	90	99	87	87	65
	Low risk of child becoming seriously ill and possibly dying	18	32	15	10	1	13	13	35
MALARIA	High risk of child becoming seriously ill and possibly dying	81	65	94	99	96	84	85	49
	Low risk of child becoming seriously ill and possibly dying	19	35	6	1	4	16	15	51

For the majority of mothers, severity is determined by water-like quality of the stool

Weakness is also seen as an indicator of severity by over a third of caregivers

	TOTAL	Lagos	Abuja	Katsina	Enugu	Bauchi	Rivers	Ondo
Base: All caregivers	800	180	80	140	80	110	130	80
	%	%	%	%	%	%	%	%
<i>Respondents mentioning each item in 1st, 2nd, or 3rd place (out of 5)</i>								
How watery the stool is	77	81	98	79	96	53	61	90
The child is weak/does not want to play	40	40	32	35	45	41	32	62
The smell of the stools	30	18	16	25	61	24	44	36
The frequency of bowel movements	28	28	40	42	28	19	25	11
Whether blood in the stool	28	30	45	37	6	23	25	19
The color of the stools	24	16	15	29	22	25	44	9
Whether vomiting	23	31	29	14	21	29	17	21
Whether child has fever/high temperature	17	27	11	14	6	25	8	19
Whether child is eating/drinking normally	14	8	2	22	1	35	14	11
Mucous in the stool	7	10	6	-	-	7	15	9

General feedback from *providers* on diarrhea and treatment

Agreement with statements about diarrhea and overall approach to treatment	All providers (n=253)
	% agree
Mothers or caregivers like to be given the most powerful treatments for diarrhea	94
Private treaters sometimes have to think about the profit or loss they make on products to treat diarrhea	69
Quite often treaters and advisors recommend more than one treatment	91
Antibiotics are the most effective treatment for diarrhea	66
Mothers or caregivers do not administer the therapies/treatments provided properly; compliance is very poor	53
Mothers or caregivers usually wait a day or two before seeking care from a health care provider	77
Those who treat or provide advice sometimes have to consider the financial status of the child's family in deciding which products or treatments to administer or recommend	75

General feedback from *caregivers* on diarrhea and treatment

	TOTAL	C2	D	E
<i>Base</i>	<i>(800)</i>	<i>(203)</i>	<i>(493)</i>	<i>(63)</i>
	<u>% agree</u>	<u>% agree</u>	<u>% agree</u>	<u>% agree</u>
I feel confident about treating diarrhea	80	83	81	68
Diarrhea can be treated effectively with traditional/herbal remedies	45	41	46	41
Children with diarrhea need more water and liquids	72	72	72	75
I feel confident that I can accurately make homemade sugar-salt solution	61	62	62	62
Diarrhea is difficult to treat	31	33	29	35

CARE-SEEKING BEHAVIOR

Care-seeking behavior summary

83%

of caregivers sought care within 48 hours of start of last episode

77%

of providers say that caregivers wait a day or two before seeking care

54%

of providers say that caregivers wait to seek care to see severity of episode

92%

of caregivers did not adjust the child's diet

- Providers say mothers wait to seek care because they want to see how severe the episode is (54%) and because of cost (26%).
- No rural/urban difference in care-seeking within 48 hours.

Sources of care

- **Patent and proprietary medical vendors (PPMVs)**
 - Primary source for medications, usually the first to be sought on the care ladder by caregivers, particularly among lower SECs.
 - Typically not formally trained or educated (13% medical training, 6% NAPPMED).
 - Often work on credit.
 - Widely referred to as “chemists”; may be referred to as “doctors” by less educated.
- **Pharmacists**
 - Regarded as professionals by caregivers—“better than chemists.”
 - Medications prescribed by pharmacists are considered to be authentic.
- **Doctors/nurses**
 - Most trusted yet they are the last resort on the care ladder.
 - Services are perceived to be more expensive than that of a pharmacist or PPMV.
 - Poor quality of care in some areas may prevent or delay care-seeking (caregivers are often shamed or blamed for their child’s condition).

PPMV training and licenses held

	All PPMVs (n=70)
	%
HND/ OND/ O Level	21
Patient licenses/patient vendor	20
Professional business certificate	9
Nursing qualification (BSc/registered nurse certificate/NCE school of nursing)	6
Federal Ministry of Health license	6
Patient medical certificate	6
BSc Chemistry	4
Association of patent and proprietary medicine dealers	4
Medical license - professional doctor	3
Trained by pharmacist	3
Pharmacy Council of Nigeria	3
None	3

Mentions of 1% or less not shown

Care-seeking within 48 hours of the start of the last episode

More than 8 in 10 (83%) bought and used a treatment for diarrhea within 48 hours of the episode starting. Caregivers in Rivers and Ondo were somewhat slower to respond, which is in stark contrast to caregivers in Abuja.

	TOTAL	Lagos	Abuja	Katsina	Enugu	Bauchi	Rivers	Ondo
<i>Base: All respondents</i>	800	180	80	140	80	110	130	80
	%	%	%	%	%	%	%	%
<u>Bought and used within 48 hours</u>								
ORS	54	66	74	56	52	55	34	41
Antibiotics	46	43	60	38	69	47	35	46
Antibiotic injections	1	-	-	1	1	-	-	9
Anti-motilities	12	15	15	9	9	11	15	10
Zinc	2	1	8	-	1	4	-	4
Any bought/used within 48 hours (net analysis)	83	88	98	83	90	83	70	76
		Urban	Rural					
Any bought/used within 48 hours (net analysis)		84	83					

Provider perceptions of why caregivers wait to seek care

77% of all health care providers state that caregivers wait a day or two before seeking care.

All providers who agree that “caregivers usually wait a day or two before seeking care from a health care provider”

Main reasons why providers think caregivers wait a day or two before seeking care

(n=196)
%

Wait to see how severe the episode is

54

Financial problems/affordability

26

Caregivers are ignorant

21

Believe homemade treatments may work

10

Nonchalant attitude toward child health

8

They believe natural herbs will work

5

TREATMENT CHOICES

Treatments

- **ORS**

- Approximately half of caregivers use ORS first. 72% of providers who recommend more than one product recommend ORS first.
- ORS is typically given around the second day of illness for about 3 days.
- There is a higher level of under-dosing among the 2- to 5-year age group, where more than half receive less than 1 liter a day (very slight difference rural/urban).
- In instructions for use, only 40% of providers indicate the length of time ORS should be used and only 38% indicate how much liquid should be used. Half of caregivers and providers indicate there is liquid left over, which is wasted.
- Overall, ORS appears to be readily and consistently available.

- **Antibiotics**

- Seen as effective in stopping the diarrhea quickly.
- Antibiotics are used first by 21% of caregivers.

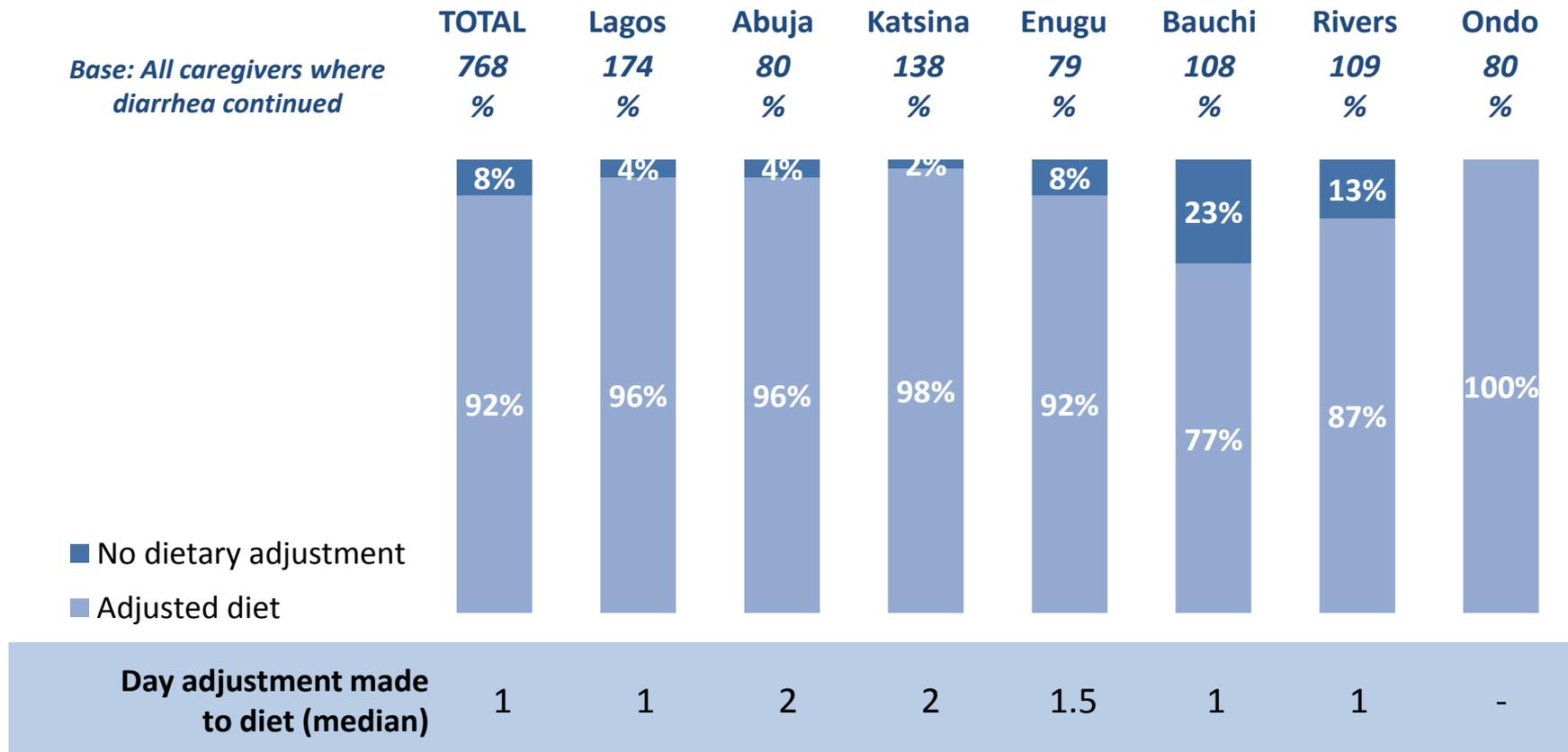
- **Homemade sugar-salt solution**

- There is confusion over the correct amounts of water, sugar, and salt to mix for the child. Caregivers and HCPs alike recognize that people do not really know what they are doing when they prepare HSSS.

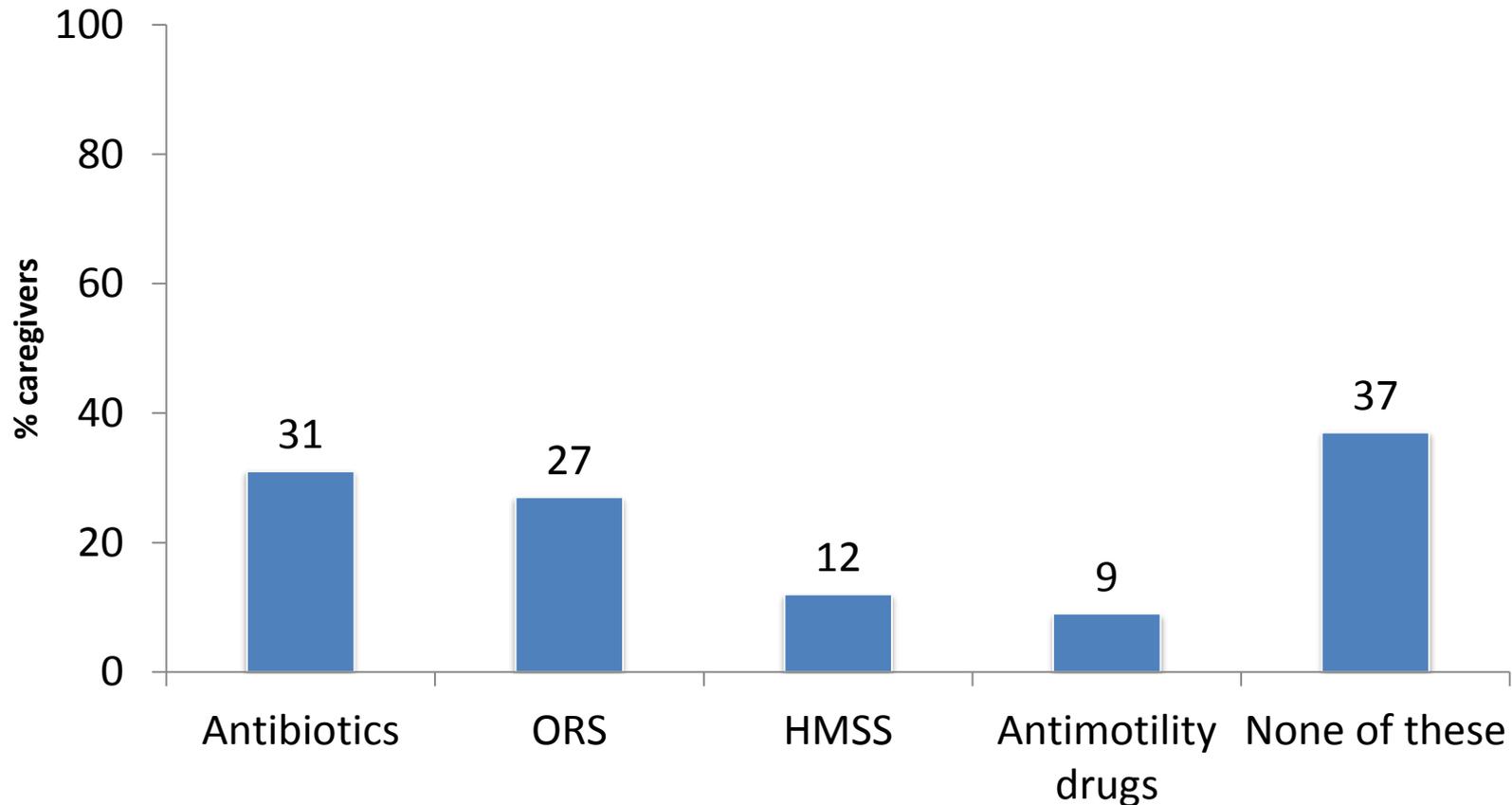
- **Compliance with treatment regimens**

- 20% of caregivers report not having confidence in treating diarrhea (SEC “E” 32%).
- 53% of providers state that caregivers do not administer treatments properly.

Dietary adjustment



Nearly 2 in 3 have at least one product to treat diarrhea at home—primarily ORS and antibiotics



What products did caregivers use during the last diarrhea episode?

Nearly two-thirds of caregivers gave their child ORS in the last episode; antibiotics were the second most administered treatment.

<i>Base: All treating during last episode of diarrhea</i>		TOTAL	Lagos	Abuja	Katsina	Enugu	Bauchi	Rivers	Ondo
		768	174	80	138	79	108	109	80
<u>All treatments administered</u>	%	%	%	%	%	%	%	%	%
ORS	65	84	79	62	61	60	44	56	56
Antibiotics	58	60	71	48	77	56	45	56	56
Anti-motilities	17								
Homemade sugar-salt solution	15								
Traditional/herbal remedies	4								
Antibiotic injections	2								
Zinc syrup	1.7								

- ORS use at last episode fairly consistent across rural/urban as well as age of child.
- Lowest SEC more likely to have used HSSS (32% compared to 14% for C2 and D).
- One-fifth of caregivers in Bauchi and Rivers used HSSS in the last episode.

Caregivers request antibiotics more than other treatments

	ORS <i>(502)</i> %	Antibiotics <i>(442)</i> %	Anti-motilities <i>(128)</i> %
Base: All caregivers using at last episode			
I requested it	39	43	20
Who recommended?	<i>(305)</i> %	<i>(253)</i> %	<i>(102)</i> %
Doctor	39	29	39
PPMV	26	23	26
Pharmacist	15	15	15
Nurse	11	22	8
CHW	5	7	7
Source of acquisition:	<i>(502)</i> %	<i>(442)</i> %	<i>(128)</i> %
PPMV	45	46	41
Pharmacist	30	28	34
Public clinic/hospital	21	17	17
Private clinic/hospital	3	6	7

What product did caregivers use who did not use ORS?

Base: All treating during last episode of diarrhea <u>but not using ORS</u>	TOTAL	Lagos	Abuja	Katsina	Enugu	Bauchi	Rivers	Ondo
	266	27	17	52	31	43	61	35
<u>All treatments administered</u>	%	%	%	%	%	%	%	%
Antibiotics	70	74	88	77	81	56	66	66
Anti-motilities	18	37	18	17	13	14	18	17
Homemade salt and sugar	28	22	18	19	32	30	33	34
Traditional/herbal remedies	8	-	6	8	3	19	10	-
Antibiotic injections	3	-	-	2	3	-	-	20
Zinc syrup	3	4	12	-	-	2	-	9

- Higher use of anti-motilities in Lagos
- Higher use of traditional remedies in Bauchi and lower use of antibiotics
- No reported use of zinc tablets by caregivers, however some use of syrup

According to providers, ORS and antibiotics are the leading treatments

Treatments typically prescribed or recommended for diarrhea	All providers (n=253)
	%
ORS	93
Antibiotic drugs (syrups and tablets)	80
Anti-motilities	31
Antibiotic injections	15
Zinc tablets	8
Zinc syrups	4

More mentions among all doctors and nurses of:

- Antibiotic injections (21%)
- Zinc tablets (17%)

More mentions of anti-motilities among pharmacists (41%)

TREATMENT SEQUENCING

Majority of caregivers report using ORS first, followed by antibiotics and anti-motilities

	TREATMENT SEQUENCING		
	Used first	Used second	Used third
<i>Base: All treating during last episode of diarrhea</i>	768	412	78
	%	%	%
<u>Main products only:</u>			
Homemade salt and sugar solution	12	5	3
ORS	46	31	17
Antibiotics	31	43	38
Anti-motilities	6	16	23

Base too low for “used fourth” and for subgroup analysis.

Product sequencing by state

Caregivers in Lagos are most likely to use ORS first, while those in Enugu prefer antibiotics; those in Rivers and Ondo are using ORS and antibiotics to similar degrees.

Base: All treating during last episode of diarrhea	FIRST-USED PRODUCT							
	TOTAL	Lagos	Abuja	Katsina	Enugu	Bauchi	Rivers	Ondo
	768	174	80	138	79	108	109	80
	%	%	%	%	%	%	%	%
<u>Main products only:</u>								
Homemade salt and sugar	12	6	5	13	11	15	17	18
ORS	46	61	50	51	35	42	33	39
Antibiotics	31	24	34	26	44	28	34	36
Antibiotic injections	1	-	-	-	4	-	-	8
Anti-motilities	6	7	5	6	6	4	9	-
Zinc syrup	1	-	4	-	-	2	-	-
Traditional/herbal remedies	3	1	2	4	1	6	6	-

Providers also report recommendation of ORS as first line treatment

All providers typically recommending more than one treatment for a diarrhea episode (n=226)

Recommended order of use where more than one treatment advised	%		
	<i>Use first</i>	<i>Use second</i>	<i>Use third</i>
ORS	72	20	4
Antibiotic drugs (syrups and tablets)	21	58	6
Anti-motilities	5	12	14
Zinc tablets	-	3	3
Antibiotic injections	-	2	15
Zinc syrups	-	1	2
Others	1	4	5
None	-	-	51

REASONS FOR PRODUCT PREFERENCE

Provider reasons for recommending a product for diarrhea treatment

Some misunderstanding about the role of ORS and antibiotics.

ORS		Antibiotic drugs (syrups and tablets)	
All providers typically recommending ORS to treat diarrhea (n=235)		All providers typically recommending antibiotics to treat diarrhea (n=202)	
	%		%
Replaces lost fluid to prevent dehydration	32	Replaces lost fluid to prevent dehydration	30
Strengthens the child	23	Kills bacteria	28
Stops stooling/vomiting	21	Strengthens the child	24
Is safe and active	14	Stops stooling/vomiting	22
Recommended for diarrhea treatment	13	Stops diarrhea fast/completely	16
Energizes and improves child's appetite	9	Is safe and active	12
Affordable	8	Recommended for diarrhea treatment	10

Caregiver reasons for antibiotic product preference

Most effective

n=331

Stops diarrhea quickly – 60%

Works well – 22%

Effective without needing other drugs – 9%

Strongest medicine

n=363

Stops diarrhea quickly – 40%

Strong without side effects – 17%

More effective than others – 17%

Stops diarrhea immediately – 11%

Easy for children to take

n=177

Pleasant taste – 44%

Easy to swallow – 39%

Best use of money

n=302

Not expensive – 52%

Good and effective – 46%

Stops the diarrhea – 24%

From the provider's perspective: Why certain products are preferred by caregivers

	ORS	Antibiotic drugs	Anti-motilities
All providers believing treatment is more preferred by caregivers	(n=194)	(n=181)	(n=74)
	%	%	%
Effective at stopping diarrhea	31	24	54
Affordable	27	13	5
Replenishes lost fluids	22	-	-
Gives body strength	16	2	5
Restores energy/appetite	15	-	4
Rehydrates system	10	2	-
Readily available	8	4	-
Easy to use	8	4	5
Easy to prepare	6	-	-
Kills bacteria in the body	-	34	5
Stops diarrhea in one day/acts fast	-	30	31

Providers recognize the strength of ORS against other treatments, are aware that antibiotics stop the diarrhea

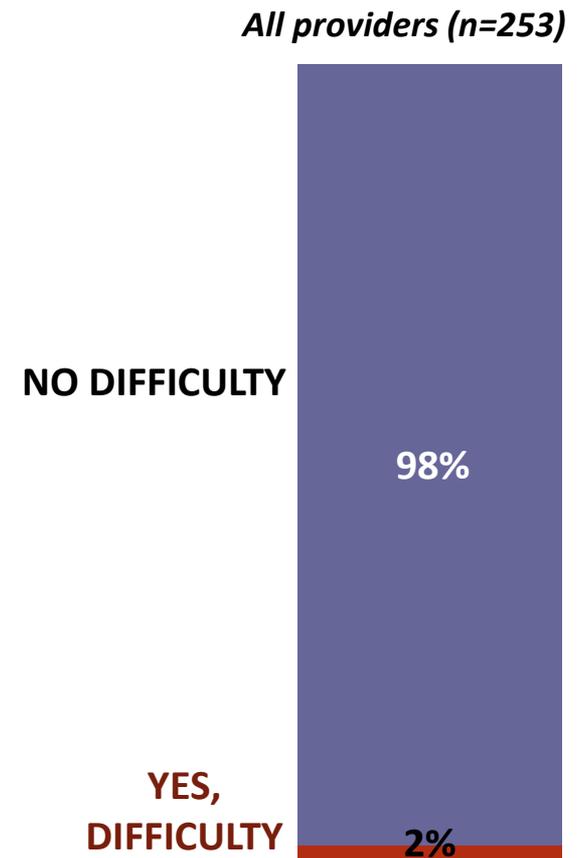
Association of attributes with treatments	All providers (n=250)					
	HSSS	ORS	Antibiotic drugs	Anti-motilities	All of them	None of them
Recommended by health care professionals	9	56	45	29	37	-
Like a medicine	10	35	44	29	39	2
Easy for children to take	21	48	34	19	17	10
Nice tasting	23	49	25	17	13	13
Easy to prepare	26	64	25	9	19	4
Easy to use when travelling with the child	8	45	49	22	22	4
Stops the diarrhea/stooling	8	45	66	38	13	2
Significantly reduces diarrhea motions within a day or two	12	49	21	39	10	-
Restores the child's energy and appetite	34	85	25	11	4	2
Helps replace fluid/water and minerals lost due to diarrhea	40	87	22	9	1	1
Easily available close by, when I need it	29	66	43	19	19	-
Not expensive	31	70	32	8	18	2
Safe for giving to all children under 5 years of age	19	60	40	19	30	1
Stops vomiting	7	39	41	34	13	11

TREATMENT AVAILABILITY

Product availability

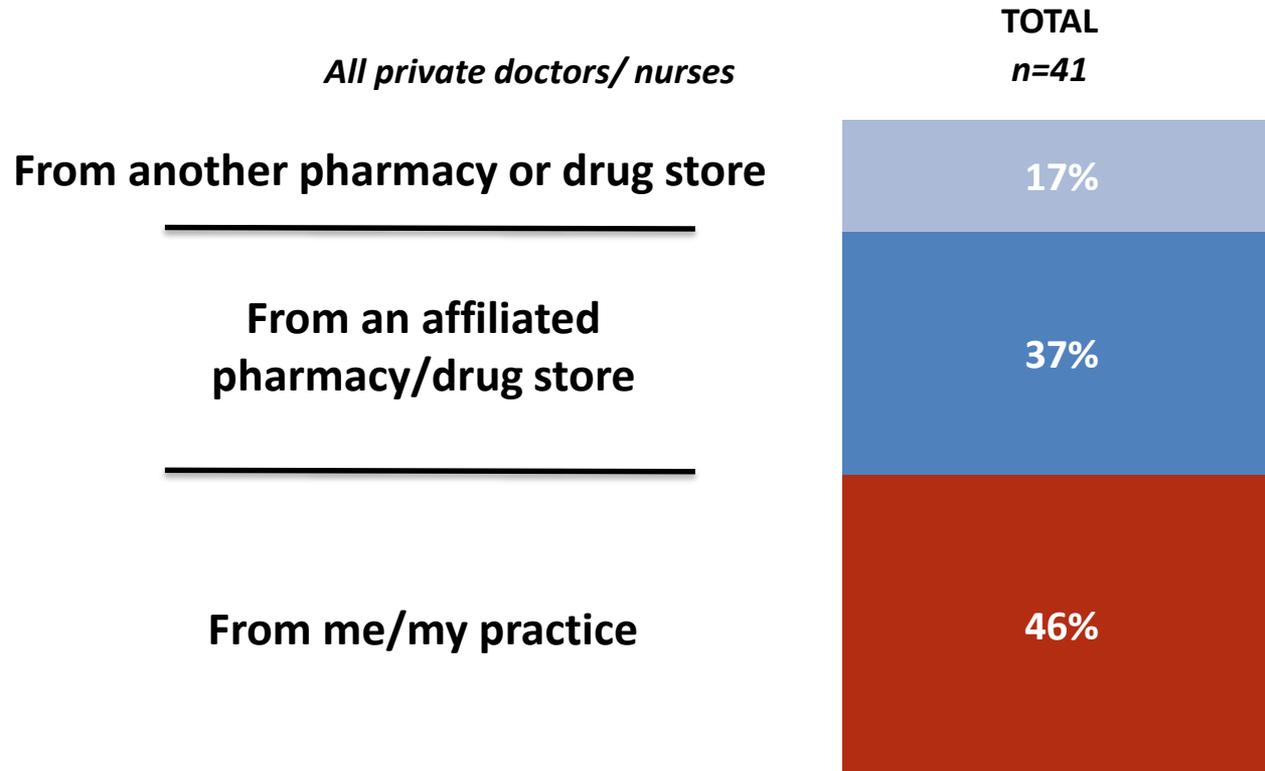
	Pharmacists (n=41)	PPMVs (n=70)
Products currently available	%	%
ORS	98	94
Antibiotic drugs (syrups and tablets)	95	91
Anti-motilities	76	70
Antibiotic injections	46	19
Zinc tablets	27	6
Zinc syrups	17	10

Whether providers experience difficulty with ORS availability



Source of acquisition for products recommended/prescribed

More than 8 in 10 private doctors and nurses either sell or supply products directly themselves (46%) or via a pharmacy/drugstore they are affiliated with (37%).



TREATMENT COST

Product and overall treatment costs



Antibiotics

% who paid for the product

83

Product cost (median)

N150/\$0.95



84

N50/\$0.32
(per sachet)

Total cost incurred in recent diarrhea episode across treatment types (median)



\$1.64

Urban: \$1.89

Rural: \$1.51

1 NAIRA = 0.00630716 USD

Private doctors and nurses charge more per ORS sachet. Cost of treatment from PPMVs appears lower than from other providers and number of sachets recommended is somewhat lower.

	All providers	Public dr/nurse	Private dr/nurse	CHW	Pharmacist	PPMV
All providers n=	253	41	41	60	41	70
Mean number of ORS sachets prescribed/recommended	2.1	2.5	2.3	2.1	2.1	1.8
Cost per ORS sachet (naira)	60	n/a	66	n/a	58	57
Total cost of ORS treatment (naira)	126	n/a	152	n/a	122	103
Public treaters only (n=41)						
YES, caregivers required to pay for ORS (%)		41				
NO, caregivers not required to pay for ORS (%)		59				
Public health care providers claiming caregivers required to pay (n=17)						
Cost per ORS sachet (naira)		50				
Total cost of ORS treatment		125				

Total cost of ORS

<i>Base: All caregivers using ORS at last episode</i>	TOTAL	Lagos	Abuja	Katsina	Enugu	Bauchi	Rivers	Ondo
	502	147	63	86	48	65	48	45
<u>Paid for product?</u>	%	%	%	%	%	%	%	%
Yes	84	88	100	60	98	86	96	64

<i>Base: All caregivers using ORS at last episode</i>	423
<u>Paid per sachet?</u>	
Median	N.50 \$0.32

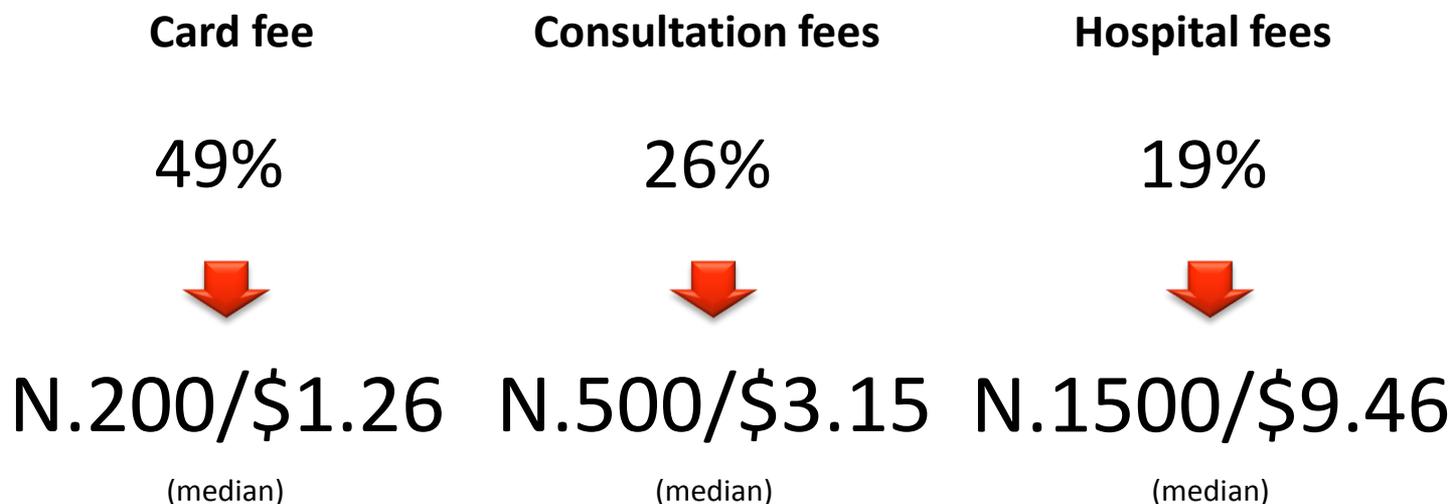
	TOTAL	Urban	Rural
<i>All paying for ORS sachet</i>	(423)	(251)	(172)
Median (total cost of sachets)	N.100/\$0.63	N.100/\$0.63	N.100/\$0.63
<i>All paying for water</i>	(366)	(231)	(135)
Median (total cost of water)	N.100/\$0.63	N.140/\$0.89	N.60/\$0.38
<i>All paying for either sachet/water</i>	(366)	(231)	(135)
Median (total cost of ORS + water)	N.200/\$1.26	N.220/\$1.39	N.150/\$0.95

1 NAIRA = 0.00630716 USD

Payment and cost for other health care–related fees

16% of caregivers paid for other health care–related expenses

These costs were mainly for ...



1 NAIRA = 0.00630716 USD

Large difference between urban and rural areas in amount willing to pay for 5 days of treatment

	TOTAL (800)	URBAN (433)	RURAL (367)
	%	%	%
Greater than 0 and less than 0.50 USD	13	9	18
0.50 to less than 1 USD	25	18	33
1 to less than 1.5 USD	16	17	14
1.5 to less than 3 USD	20	21	19
3 to less than 5 USD	16	19	11
5 or more USD	11	16	6
Mean	\$2.4	\$3.0	\$1.7
Median	\$1.3	\$1.6	\$0.9

GOALS OF TREATMENT

Considerations for therapy choice

Overall, effectiveness of the treatment (e.g., stops the diarrhea, restores energy, and rehydrates) plus affordability are the main considerations when deciding on therapy choice.

	All providers (n=253)		All providers (n=253)
Rank order of mentions	%	continued	%
Stops the diarrhea	67	Significantly reduces frequency of diarrhea/stools/motions within a day or two	43
Restores child's energy	60	Restores the child's appetite	43
Rehydrates the child	60	Reduces vomiting	42
Affordable price of treatment	58	Kills any bacteria/germs in the child's system	42
Easy for children to take	53	Effective without the use of additional treatment	40
Ease of use/preparation	50	Convenient to store	23
Improves overall health	44	Nice tasting	21
Safe for giving to all children under 5 years of age	44		

Reasons for typically recommending a product for diarrhea treatment

The main reason for recommending ORS is to prevent dehydration, although many providers feel that antibiotics also do this as well as killing bacteria.

ORS		Antibiotic drugs (syrups and tablets)	
All providers typically recommending ORS to treat diarrhea (n=235)		All providers typically recommending antibiotics to treat diarrhea (n=202)	
	%		%
Replaces lost fluid to prevent dehydration	32	Replace lost fluid to prevent dehydration	30
Strengthens the child	23	Kills bacteria	28
Stops stooling/vomiting	21	Strengthens the child	24
Is safe and active	14	Stops stooling/vomiting	22
Recommended for diarrhea treatment	13	Stops diarrhea fast/completely	16
Energizes and improves child's appetite	9	Is safe and active	12
Affordable	8	Recommended for diarrhea treatment	10
Helps to replenish the immune system of the baby	8	Helps to replenish the immune system of the baby	8

FOCUS ON ORS

Instructions provided to caregivers about ORS usage

ORS is rarely recommended without the provider giving instructions about how to prepare it correctly. More emphasis needed on length of time to be used and amount of liquid per day.

Instructions provided to caregivers about ORS usage	All providers (n=253) %
How to make the ORS	83
How to prepare the water	70
Advise mothers to buy water	66
How long the ORS solution can be kept for	57
Length of time ORS to be used for	40
How much liquid should be given each day	38

Timing and amount of ORS use

ORS is typically given around the second day of illness for about 3 days. There is a higher level of under-dosing among the 2- to 5-year age group, where more than half receive less than 1 liter a day.

DETAILS RELATED TO ORS USAGE	TOTAL	Children under 2 yrs	Children 2–5 years	Urban	Rural
<i>Base: All using ORS</i>	502	312	190	288	214
	<u>Mean</u>	<u>Mean</u>	<u>Mean</u>	<u>Mean</u>	<u>Mean</u>
Day started giving	1.7 days	1.7 days	1.7 days	1.7 days	1.6 days
For how many days	3.0 days	3.0 days	2.9 days	3.0 days	2.9 days
Number of sachets used during the episode	2.3	2.3	2.2	2.4	2.2
<u>Amount given in ONE day (when the diarrhea episode was particularly bad)</u>	%	%	%	%	%
250 ml	24	27	19	25	23
500 ml	18	23	10	17	20
750 ml	22	20	25	22	22
1000 ml	19	15	24	16	23
1250 ml	4	4	2	3	3
1500 ml	9	5	14	11	5
Cant recall	2	1	2	1	2
Other	3	4	3	4	2

Perceptions of ORS

Overall, perceptions are fairly positive among caregivers and providers; however, when drilling down to non-users (those who did not use ORS at last episode), need for interventions and messaging emerge.

	% agree		
	All caregivers (n=800)	ORS non-users (n=266)	Providers (n=253)
Easy to prepare	86	36	96
Not an expensive treatment	84	38	94
Available close to my home	82	29	92 (“available nearby”)
Is a medicine	80	21	80
Increases child’s energy and appetite	77	41	87
Reduces the child’s stooling	67	14	72
Pleasant taste	62	31	73
Difficult to get the child to drink it	29	73	42

Perceptions of ORS by state

Wide variation by state emphasizes the need to localize interventions and messaging.

	Lagos	Abuja	Katsina	Enugu	Bauchi	Rivers	Ondo
<i>Base: All caregivers</i>	180	80	140	80	110	130	80
	% agree						
Difficult to prepare	2	2	6	-	21	9	14
Available close to my home	85	80	84	80	64	88	90
Expensive treatment	1	8	6	4	21	5	14
Is a medicine	81	84	90	96	88	52	75
Stops the diarrhea	52	31	76	59	62	62	82
Easy to get the child to drink it	57	56	57	20	74	71	82
Too much liquid for a young child to take	18	25	57	72	50	32	34
Often have liquid left over which is wasted	56	20	43	66	45	61	41
Not necessary to treat diarrhea	17	12	16	6	25	32	42

Perceptions of ORS and other treatments by user/non-user

COMPARATIVE PRODUCT PERCEPTION	ORS sachet		Antibiotics		Anti-motility drugs		HSSS	
	ORS users	ORS non-users	ORS users	ORS non-users	ORS users	ORS non-users	ORS users	ORS non-users
Base: ORS users (n=502) ORS non-users (n=266)	%	%	%	%	%	%	%	%
Helps replace fluid	79	42	14	40	8	9	13	27
Safe for giving to children under 5 years old	68	30	27	45	14	13	8	21
Restores the child's energy and appetite	81	41	15	39	11	12	12	22
Significantly reduces diarrhea motions	59	14	40	61	18	19	6	9
Stops the diarrhea	48	13	46	66	16	21	5	10
Stops vomiting	47	20	25	44	16	16	6	12
Not expensive	75	38	20	41	7	9	27	38
Easily available	66	29	30	45	10	9	17	28

Perceptions of ORS and other treatment by user/non-user (cont.)

COMPARATIVE PRODUCT PERCEPTION	ORS sachet		Antibiotics		Anti motility drugs		HSSS	
	ORS Users	ORS Non-users	ORS Users	ORS Non-users	ORS Users	ORS Non-users	ORS Users	ORS Non-users
<u>Convenience</u>								
Base: ORS users (n=502) ORS non-users (n=266)	%	%	%	%	%	%	%	%
Easy to prepare	75	36	16	30	6	7	18	30
Easy to take	57	27	25	38	14	14	18	30
Nice tasting	62	31	18	29	12	9	22	33
Easy to use when travelling with a child	57	27	39	58	15	13	7	11
<u>Trust</u>								
Recommended by HC professionals	64	22	42	44	26	19	4	9
Like a medicine	47	21	33	40	22	18	10	20

Caregiver ORS perceptions

Effective

n=324

Stops diarrhea quickly – 46%

Helps regain lost energy – 30%

Helps replace lost fluids – 16%

Works well – 18%

Helps with child's appetite – 11%

Strongest medicine

n=281

Stops diarrhea quickly – 38%

Restores energy – 23%

Strong without side effects – 22%

More effective than others – 16%

Stops diarrhea immediately – 10%

Easy for children to take

n=383

Pleasant taste – 47%

Easy to swallow – 23%

Does not taste like medicine – 16%

Best value for money

n=440

Not expensive – 81%

Good and effective – 27%

Provider perceptions of ORS

Use of ORS is perceived to be easy and affordable; however, providers believe there are some issues related to the volume of liquid and frequency of giving ORS to child.

		All providers (n=253)
		%
Helps replace fluids/water/minerals		92
Is necessary to treat diarrhea		75
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> More PPMVs associate ORS with stopping diarrhea (80%) and stopping vomiting (73%) </div>	Stops the diarrhea	65
	Stops vomiting	62
Instructions for use are clear		90
Easy to obtain clean water		89
Caregivers feel confident preparing it		73
Not too much liquid for a young child to take		62
Often have liquid left over		50
Frequency of administering is acceptable		48

Reasons for not using ORS

Caregiver reasons for not using ORS	All NOT using ORS at last episode (n=298) %
Not aware of it	13
It is not important to use	13
ORS does not stop diarrhea	9
Antibiotics (Flagyl) treat diarrhea effectively	7
Not recommended by pharmacist	6
Not recommended by doctor	6
Don't know how to make it	6

Provider perceptions of why caregivers may not use ORS	All providers (n=253) %
Their children don't like taking it	21
Not aware of its existence	19
Not sure how to prepare it	11
ORS does not stop diarrhea	9
It does not taste nice	9
Caregivers are illiterate	9
Too cheap/not good quality	6
Can't afford it	6

Containers used to mix water and ORS

7 in 10 caregivers use a plastic bottle to mix the water and ORS.



Plastic
bottle

69%



Urban: 75%

Rural: 60%



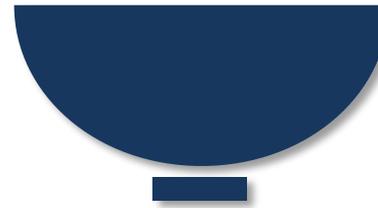
Cup

16%



Jug

10%



Bowl

3%



Cooking
pot

1%

7 in 10 caregivers buy water to make ORS and most purchase table water

73% bought water to make the ORS mixture

Of those buying water ...

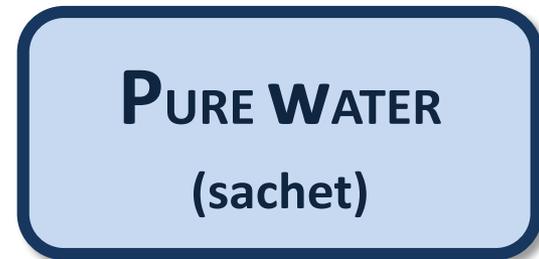
38% bought



36% bought



27% bought



Purchasing water for ORS

Those in urban areas are more likely to buy water when using ORS. When water is purchased in rural areas, it is more likely to be the less expensive water sachet.

	TOTAL	Urban	Rural
<i>Base: All using ORS at last episode</i>	(502)	(288)	(214)
<u>Did you buy water?</u>	%	%	%
Yes	73	80	63
No	27	20	37
<i>Base: All using ORS at last episode and purchasing water</i>	(366)	(231)	(135)
Table water 1.5 liter	38	47	21
Table water 750 ml	36	39	31
Pure water (sachet)	27	14	47

FEEDBACK ON ALTERNATIVE ORS PRODUCT PRESENTATION

ORS product presentations

Respondents were shown a range of presentations of ORS, not all on the market (traditional, currently available ORS sachet, slim-line ORS sachet, ready-to-drink ready-mix 200 ml carton, and effervescent tablets) and asked about their opinions and preferences.



Feedback on product presentations

Ready-to-drink (most preferred)

Pros

- Convenient, easily available, and easy to administer to children.

Cons

- Lower SECs perceived it to be just juice.
- Difficult to administer to those under 1 year old because of the straw.
- PPMVs complained that storage may be a challenge.
- Effect of sunlight on the potency of the pre-mix solution.
- Some queried how this format would be preserved, considering that ORS mixture needs to be disposed of after 24 hours—perception of additional preservatives being used caused some concern.

Slim-line sachet (second most preferred)

Pros

- Modern and likely to be cheaper because of the smaller sachet.
- Minimal wastage as the solution can be made on a need-to-use basis. This benefit is very appealing.

Cons

- Requirement to mix it with water is viewed as inconvenient.

Feedback on product presentations (cont.)

Tablet

Pros

- Created high interest due to its novelty and the idea that a fizzing action will be appealing to children.

Cons

- Tablet too large.
- Expensive because of the number of tablets in one pack.
- Bubbling effect might further aggravate the diarrhea.
- Risk of contamination as the caregiver may pick up the tablet with bare hands.
- Need to mix with water.

Traditional ORS sachet

Pros

- Easily accessible and cheap.
- Usually in stock.
- Easy to prepare—needs no pre-measurement.

Cons

- Taste.
- Lack of variety in flavors.
- Need for more innovation—ready-to-drink, more flavors (pineapple, honey, apple, etc.)

RECALL OF ORS MESSAGING AND MEDIA INFLUENCES

Caregiver recall of information on ORS

States with recent recall also tend to have higher ORS use in last episode.

	TOTAL	Lagos	Abuja	Katsina	Enugu	Bauchi	Rivers	Ondo
<i>Base: All caregivers</i>	800	180	80	140	80	110	130	80
	%	%	%	%	%	%	%	%
Recall hearing about ORS (%)	68	78	98	54	96	49	47	68
Within the last 3 months	32	20	45	59	13	41	39	20
Within the last 6 months	21	12	32	20	12	26	25	35
Within the last year	21	27	19	14	27	15	25	11
Within the last 2–3 years	14	26	3	7	19	11	2	22
Within the last 4–5 years	6	8	1	-	17	6	2	9
More than 5 years ago	5	7	-	-	12	2	8	2

Caregivers report primarily hearing about ORS through antenatal care.

Frequency of listening to the radio

	TOTAL	Lagos	Abuja	Katsina	Enugu	Bauchi	Rivers	Ondo
<i>Base: All caregivers</i>	800	180	80	140	80	110	130	80
<i>In a typical week, how often do you listen to the radio?</i>	%	%	%	%	%	%	%	%
Every day	34	44	29	35	34	19	34	36
Most days	24	19	31	28	29	23	21	26
1 or 2 days	28	17	36	33	25	31	28	35
Never	14	19	4	4	12	27	18	2

Top mentions of favorite radio station

Lagos	Abuja	Katsina	Enugu	Bauchi	Rivers	Ondo
145	77	134	70	80	107	78
%	%	%	%	%	%	%
94.1 WAZOBIA FM	94.1 WAZOBIA FM	COMPANION FM KATSINA	DREAM FM	FM BAUCHI	94.1 WAZOBIA FM	ADABA FM
19%	44%	60%	16%	22%	48%	42%
RADIO LAGOS	CAPITAL FM	KATSINA FM	RADIO NIGERIA	GLOBE FM	COOL FM	POSITIVE FM
19%	14%	22%	11%	21%	13%	27%
BOND FM	COOL FM	RAY POWER / 100.5 FM	COSMO FM	BRC FM BAUCHI	RHYTHM FM	ORANGE FM
15%	12%	9%	11%	16%	11%	17%

Frequency of television watching

	TOTAL	Lagos	Abuja	Katsina	Enugu	Bauchi	Rivers	Ondo
<i>Base: All caregivers</i>	800	180	80	140	80	110	130	80
<i>In a typical week, how often do you watch TV?</i>	%	%	%	%	%	%	%	%
Every day	39	56	56	24	42	17	34	45
Most days	27	25	20	31	30	22	38	16
1 or 2 days	22	13	18	39	14	27	14	29
Never	12	6	6	6	14	34	14	10

Top mentions of favorite television show

Lagos	Abuja	Katsina	Enugu	Bauchi	Rivers	Ondo
169	75	131	69	73	112	72
%	%	%	%	%	%	%
SUPER STORY	SUPER STORY	LABARIN DUNIYA	NEWS	SUPER STORY	SUPER STORY	YORUBA SHOWS
15%	39%	28%	45%	36%	27%	50%
MOVIES	NEWS	TAFSIR	SUPER STORY	NEWS	NEWS	NEWS
14%	9%	14%	23%	18%	13%	25%
NEWS	DEADLY PASSION	NAYALLI	MOVIES		PAPA AJASCO	MOVIES
12%	7%	12%	9%		10%	7%

Recommendations

General

- Continue to increase awareness and availability of zinc among caregivers and providers.
- Need for a comprehensive approach that includes sanitation education.
- States vary widely. Use state-specific findings to create impactful messaging/interventions.
- Receipt of ORS messaging recently is associated with high ORS use. Learn from what is working well and continue efforts in order to reinforce messaging.
- Further explore interest in pre-mix ORS given high use of purchased water with ORS.

Communications

- While ORS use is high overall, messaging should reinforce that it be used first and in the right amounts.
- To target groups most likely to die from diarrhea, implementation strategy and communication messaging needs to reflect behaviors and perceptions of non-users.
- Incorporate local terminology into messaging: for example, “oral drip,” “stooling.”
- Educate both caregivers AND providers (anti-motility recommendation highest among doctors). Room to improve provider knowledge on the purpose of the products as well as the need to give instructions to mothers on volume of ORS.
- Craft messaging to address confusion between ORS and HSSS. Why pay for a product when the ingredients are at home? Make clear what the added value of packaged ORS is over HSSS.
- PPMVs could be an important group for messaging as they are seen as a trustworthy source, especially in rural areas. In addition, as they provide treatments on credit, they are not just focused on profit, but being a useful source of treatment.

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