

Scaling up ORS and Zinc to treat diarrhea: Lessons from a multi-country program

October 28, 2019



Agenda

Zinc/ORS Program Overview

Program results

Lessons learned and best practices

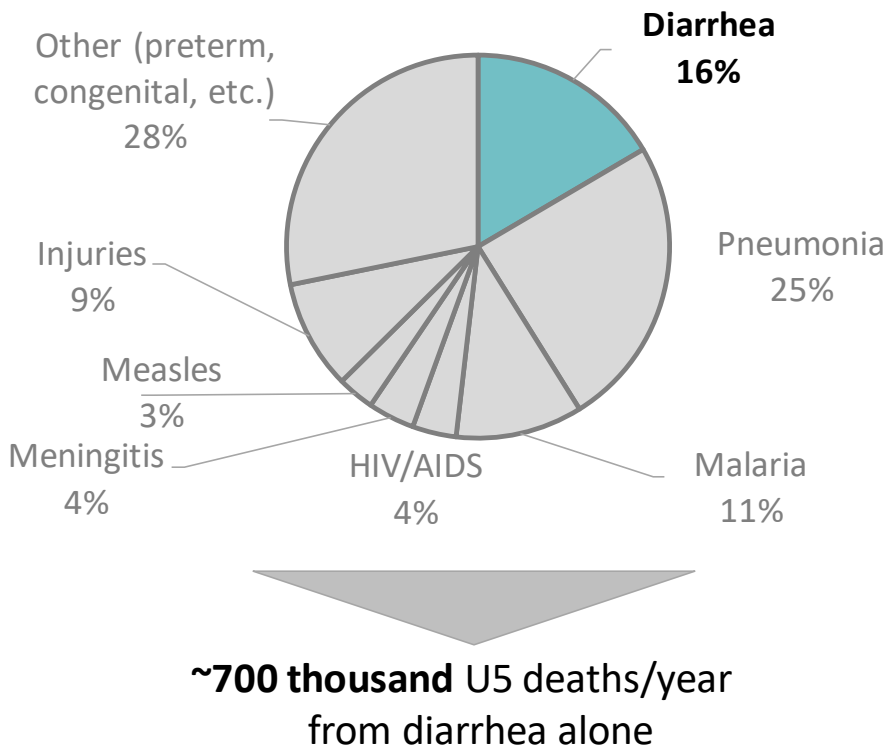
Next steps and future plans

Q&A

Diarrhea is one of the largest contributors to under-five mortality and 60% of deaths occur in just 10 countries

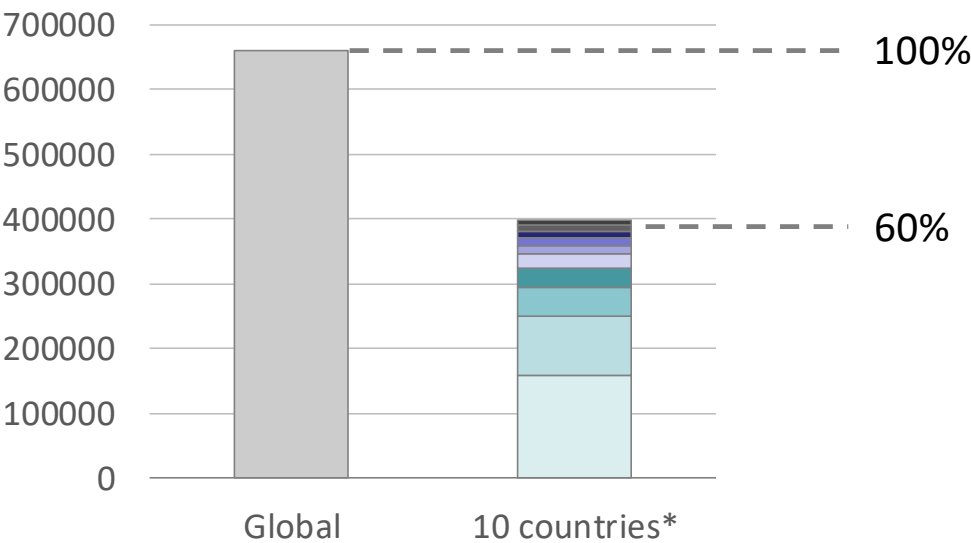
Diarrhea is one of the top contributors to childhood mortality

Proportional distribution of cause-specific deaths among children 1-59 months of age, 2010 ¹



10 countries account for 60% of all diarrhea deaths

Number of diarrhea deaths in children 1-59 months, 2010 ¹



*India, Nigeria, Pakistan, Democratic Republic of Congo, Ethiopia, Niger, Bangladesh, United Republic of Tanzania, Uganda, and Kenya

[1] Liu, L., et al. (2016). "Global, regional, and national causes of under-5 mortality in 2000–15: an updated systematic analysis with implications for the Sustainable Development Goals." *The Lancet* **388**(10063): 3027-3035.

ORS and zinc are the WHO-recommended treatment, but as of 2010, less 1% of children received the optimal combination and about one-third were treated with ORS

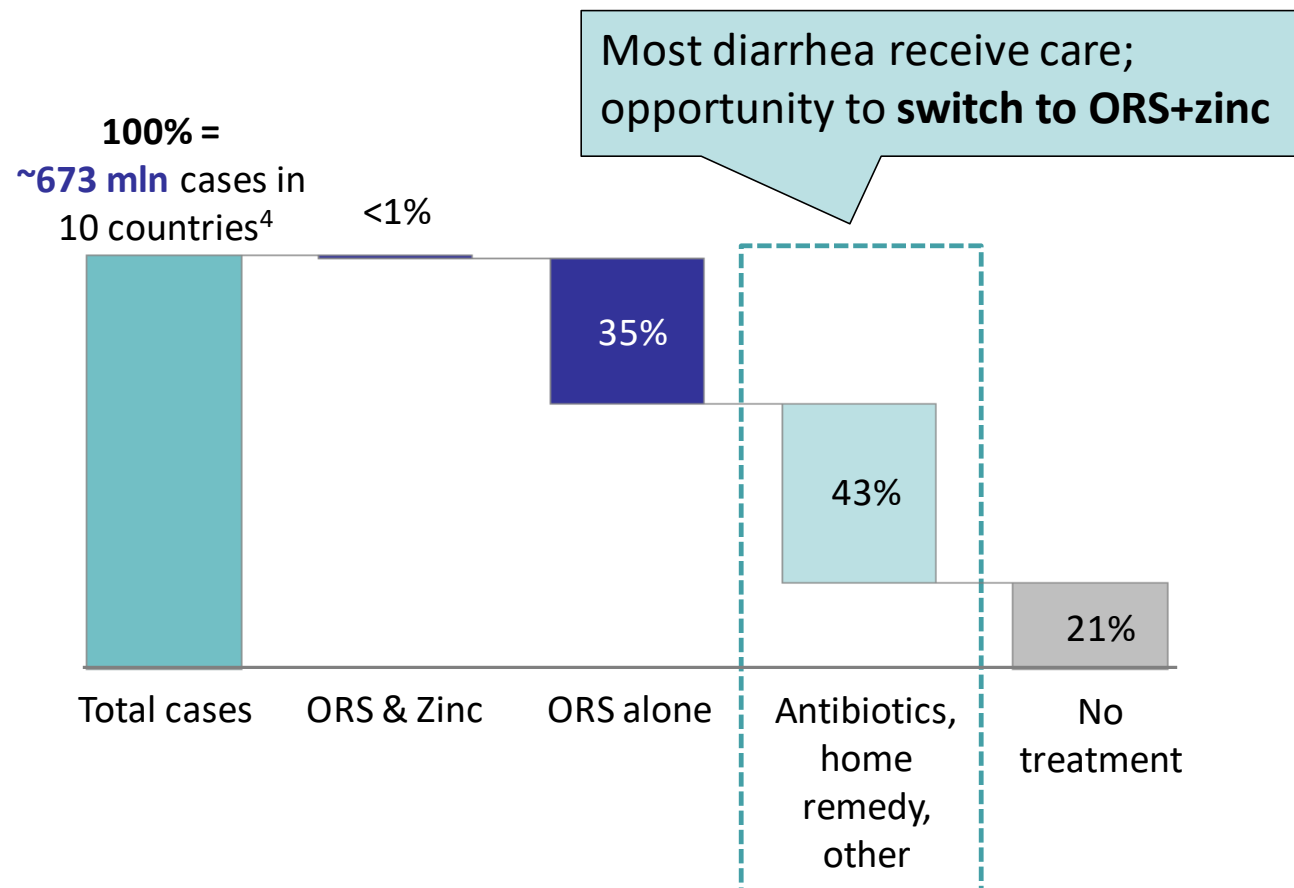
Zinc and ORS are the WHO-recommended treatment for diarrhea in children



Efficacy: ORS can avert **93%** of deaths¹
Zinc reduces the duration of diarrhea²

Cost: <US\$ 0.50 / course
(10 tablets zinc & 2 sachets of ORS)

The majority of children were getting sub-optimal treatments Median diarrhea treatment coverage in 10 high-burden countries³



[1] Munos, M. K., et al. (2010). "The effect of oral rehydration solution and recommended home fluids on diarrhoea mortality." *Int J Epidemiol* **39** Suppl 1: i75-87.

[2] Lazzerini, M. and H. Wanzira (2016). "Oral zinc for treating diarrhoea in children." *Cochrane Database Syst Rev* **12**: CD005436.

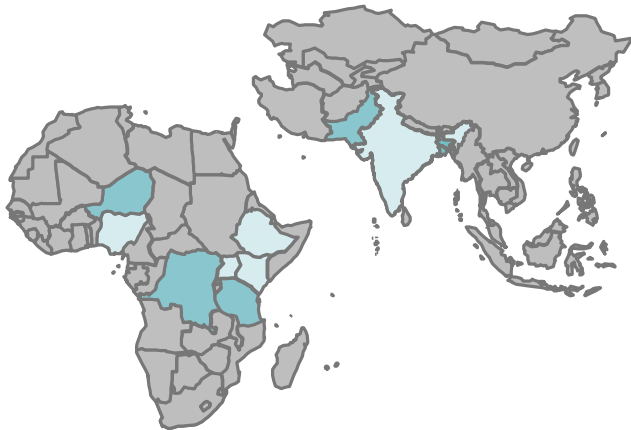
[3] Unger, C. C., et al. (2014). "Treating diarrhoeal disease in children under five: the global picture." *Arch Dis Child* **99**(3): 273-278.

[4] Walker, C. L., et al. (2013). "Global burden of childhood pneumonia and diarrhoea." *Lancet* **381**(9875): 1405-1416.

In 2012, CHAI started working in four initial focal countries to demonstrate that rapid improvements in zinc/ORS coverage are possible and sustainable at-scale

Global Diarrhea & Pneumonia Working Group

- **Purpose:** Accelerate treatment scale up across 10 high burden countries globally, accounting for ~60% of total global cases
- **Membership:** Co-chaired by CHAI & UNICEF; 40+ members (donors, NGOs, WHO, etc.)
- **Mechanism:** Technical assistance, resource mobilization; forum to share best practices



CHAI Country Programs*

India

- Donor: IKEA Foundation, Bill & Melinda Gates Foundation
- Scope: 3 states (UP, MP, Gujarat) represent >40% of national diarrhea burden

Nigeria

- Donor: Norad, Global Affairs Canada, BMGF
- Scope: 8 states (Kano, Lagos, Rivers, Kaduna, Katsina, Bauchi, Niger, Cross-River) represent ~40% of national diarrhea burden

Kenya

- Donor: IKEA Foundation
- Scope: Nationwide with 20 (of 47) focal counties

Uganda

- Donor: ELMA Foundation, Absolute Return to Kids
- Scope: Nationwide

*In 2015, CHAI launched a program in Ethiopia

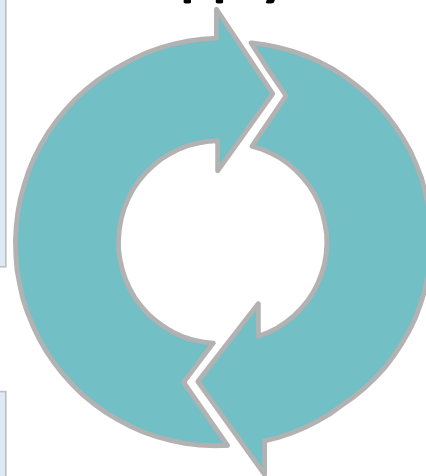
Across focal countries, national scale-up plans were based around four primary intervention areas aimed to break the 'market trap' that prevented zinc/ORS uptake

Improve provider practices



- Improve clinical **knowledge & practices** in public/private sectors
- Leverage routine **mentoring, supportive supervision** platforms
- Conduct **routine detailing** of private clinics and drug shops

Demand interventions motivate supply



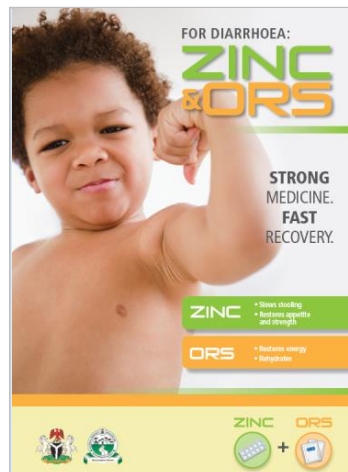
Increased supply further drives demand

Ensure availability of the product

- Engage manufacturers to expand availability & reduce sourcing costs
- Optimize **packaging & branding**
- Conduct **wholesale activations** to promote products at strategic distribution points



Generate demand



- Launch caregiver-targeted **marketing campaign**
- Leverage **key influencers and partnerships** to expand reach of key messages
- **Rigorously monitor**; make adjustments to optimize impact

Secure a conducive policy environment

- Support govt to update and disseminate **treatment guidelines** to align with WHO
- Build broad support and assist govt to **coordinate & mobilize additional resources**
- Ensure **over-the-counter** status for zinc



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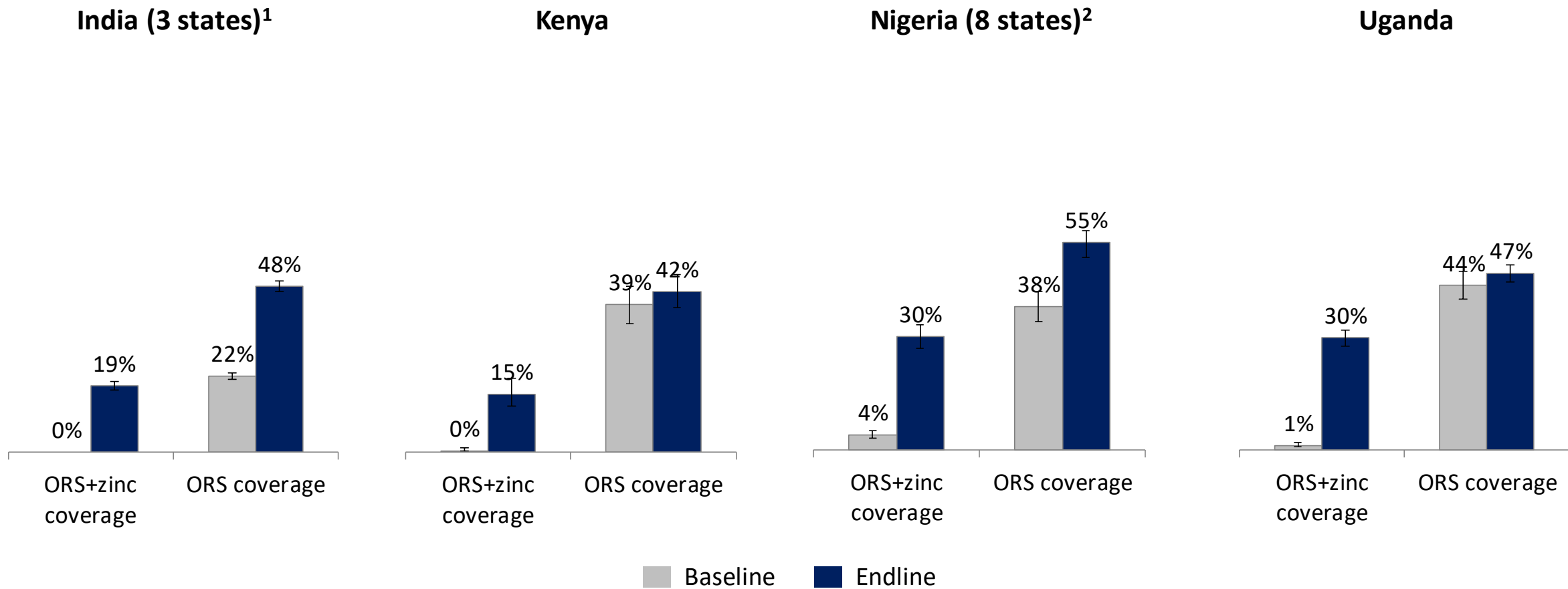
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By 2016, combined ORS and zinc coverage had increased across all focal geographies

Percent of diarrhea episodes treated with ORS and zinc



[1] Results are weighted, pooled estimates from Madhya Pradesh, Uttar Pradesh, and Gujarat.

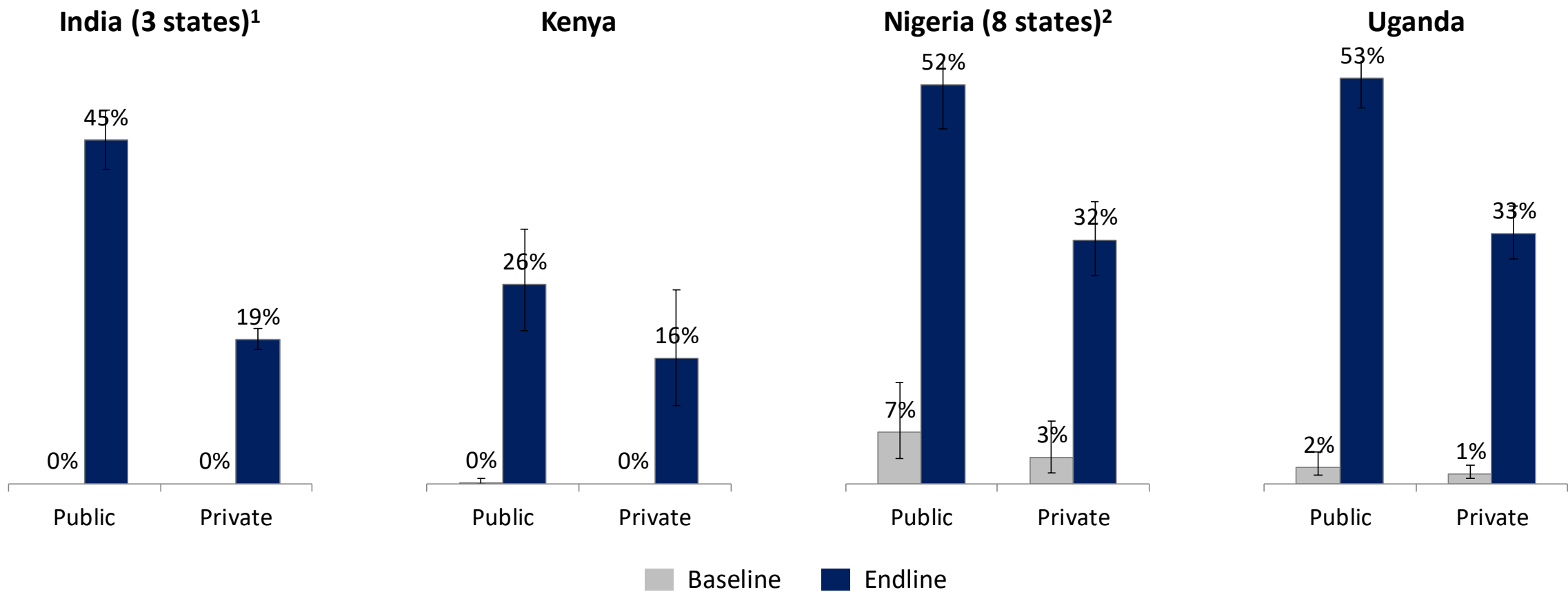
[2] Results are weighted, pooled estimates from Bauchi, Cross River, Kaduna, Kano, Katsina, Lagos, Niger, Rivers



Coverage increases were driven by improved case management practices in both the public and private sectors with greater increases in the public sector

Combined ORS+Zinc Coverage – Public vs. Private

% of children who had diarrhea in the last 2 weeks that sought care in public/private sector and received ORS+Zinc combined



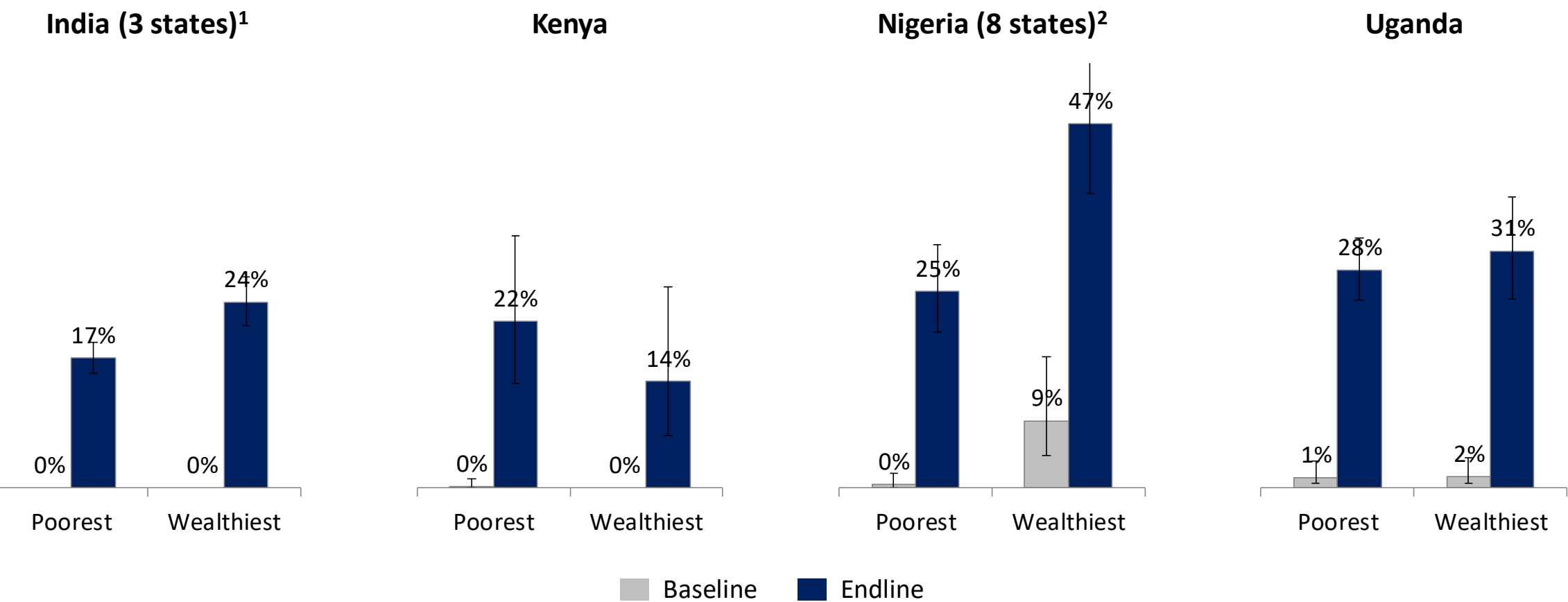
[1] Results are weighted, pooled estimates from Madhya Pradesh, Uttar Pradesh, and Gujarat.

[2] Results are weighted, pooled estimates from Bauchi, Cross River, Kaduna, Kano, Katsina, Lagos, Niger, Rivers

Combined ORS and zinc coverage increased across all wealth groups

Combined ORS+Zinc Coverage – Poorest Quintile vs. Wealthiest Quintile

% of children who had diarrhea in the last 2 weeks that received ORS+Zinc combined



■ Baseline ■ Endline

[1] Results are weighted, pooled estimates from Madhya Pradesh, Uttar Pradesh, and Gujarat.

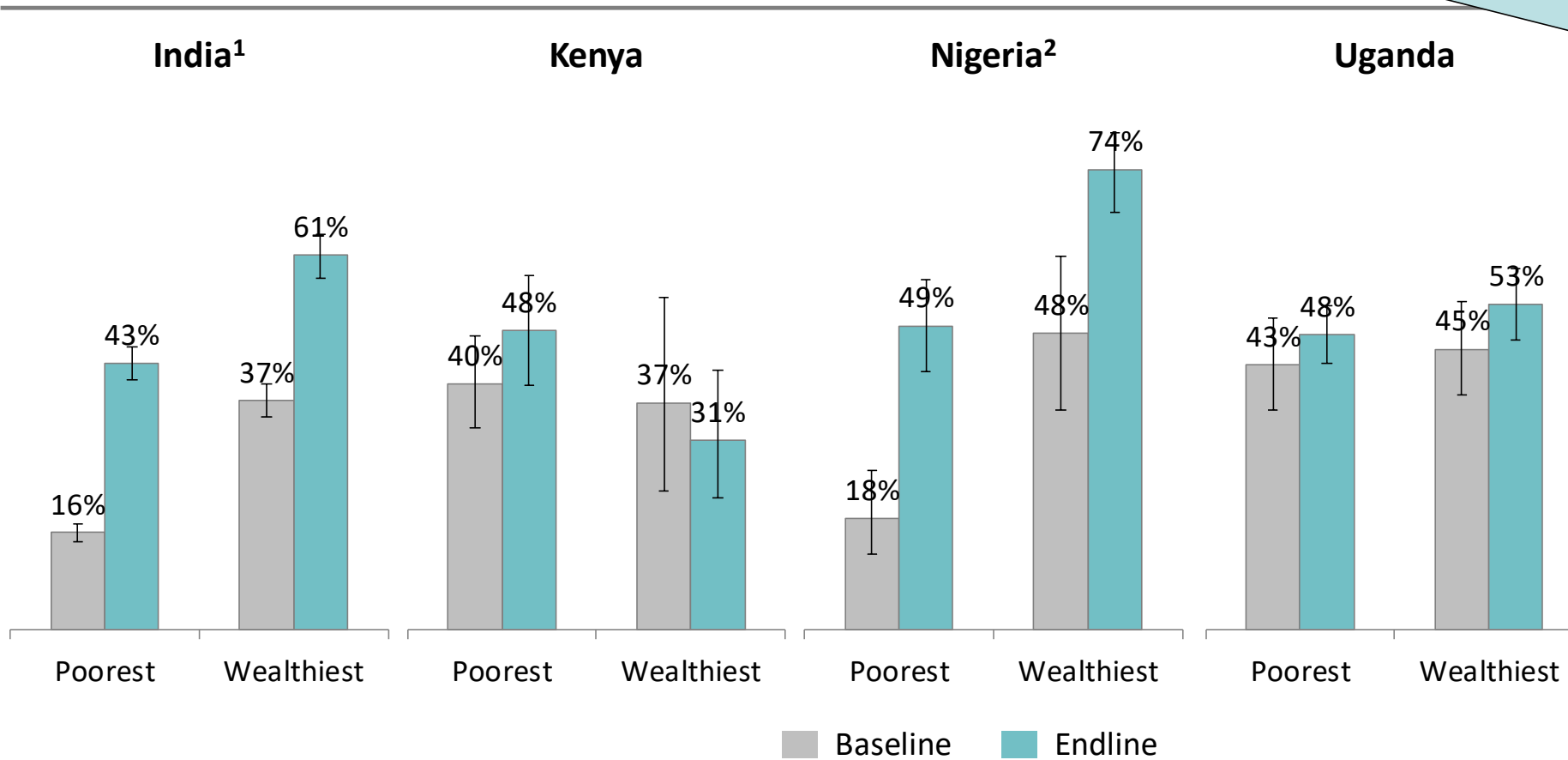
[2] Results are weighted, pooled estimates from Bauchi, Cross River, Kaduna, Kano, Katsina, Lagos, Niger, Rivers



For ORS coverage, increases were greater among poorer households than wealthier ones

ORS Coverage – Poorest Quintile vs. Wealthiest Quintile

% of children who had diarrhea in the last 2 weeks that received ORS



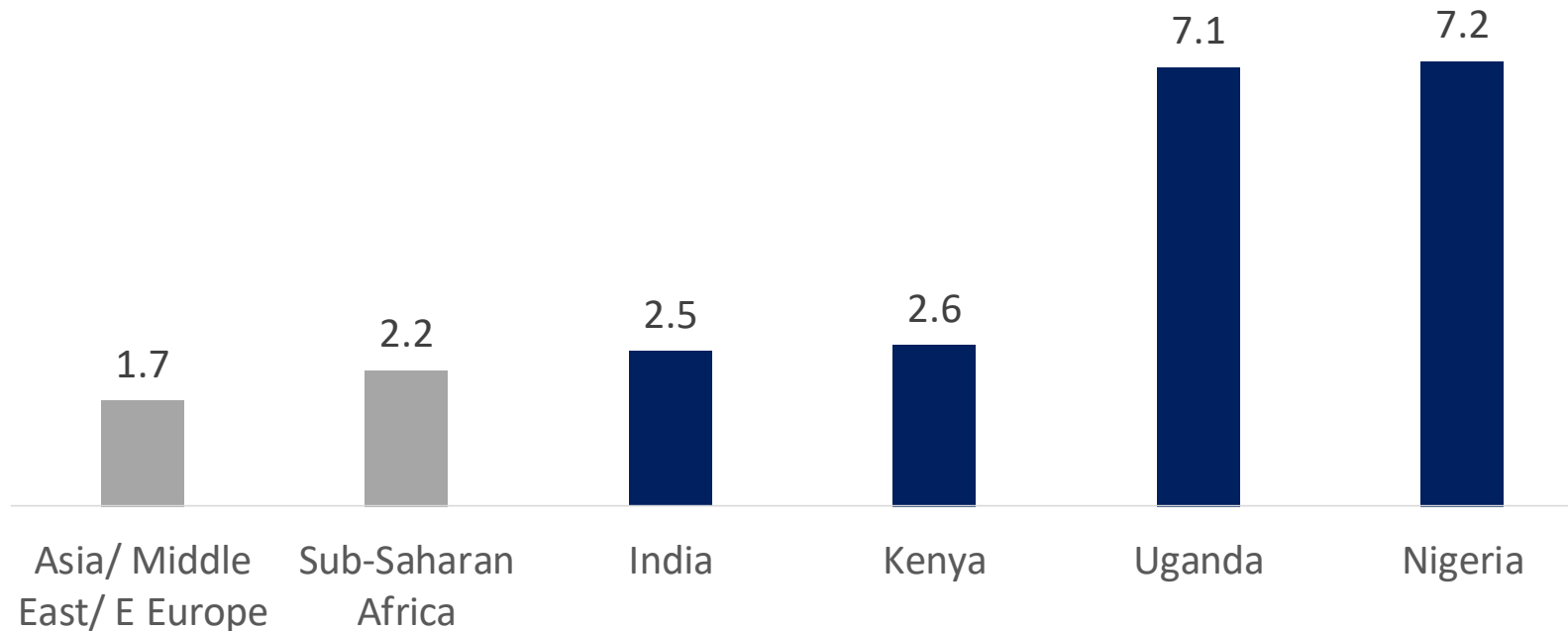
Relatively, ORS coverage among the poorest children increased by an average of **96% vs 30%** for the wealthiest.

[1] Results are weighted, pooled estimates from Madhya Pradesh, Uttar Pradesh, and Gujarat.

[2] Results are weighted, pooled estimates from Bauchi, Cross River, Kaduna, Kano, Katsina, Lagos, Niger, Rivers

Across CHAI focal geographies coverage increased faster than global average; cumulatively, an estimated 76,000 deaths were averted between 2012-16

Combined ORS+zinc coverage – Average annual increase in percentage points per year (2012-16)



- Children treated with zinc/ORS increased from **1.2M to over 55M** in focal geographies
- Cumulative estimated deaths averted: **76,000**

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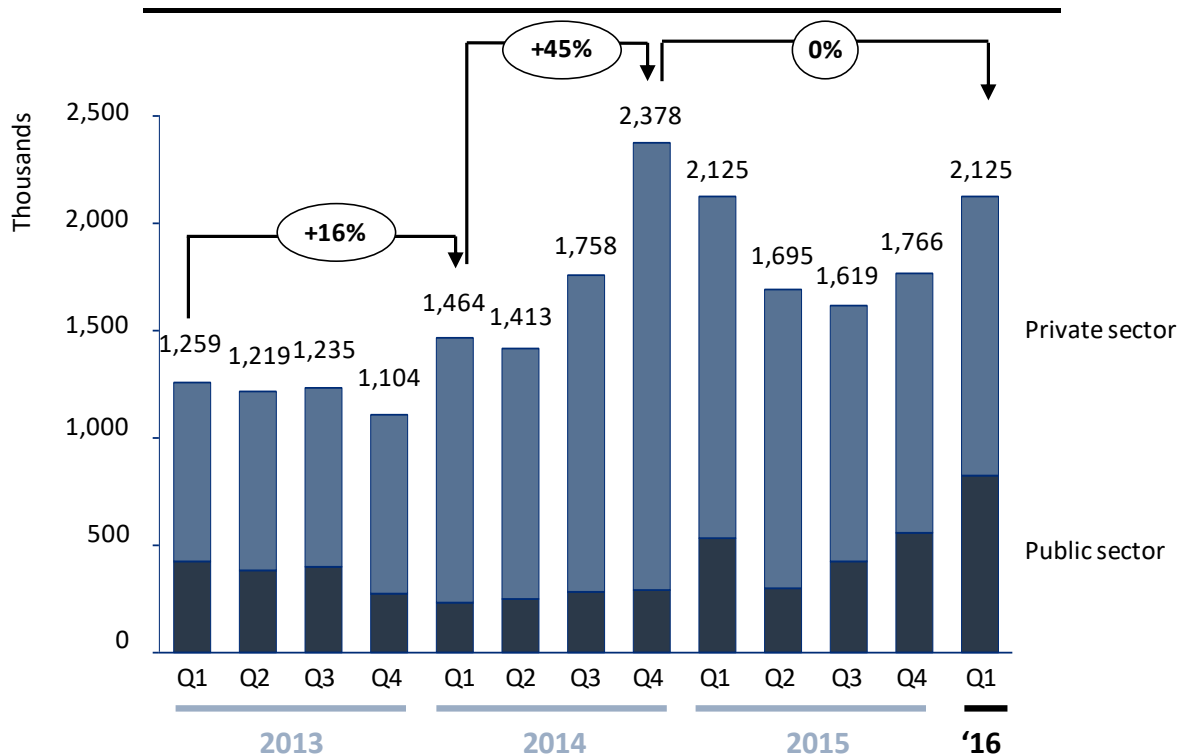
Monitoring and evaluation: Use simple leading indicators, such as ORS and zinc volumes distributed, to routinely manage performance

Uganda

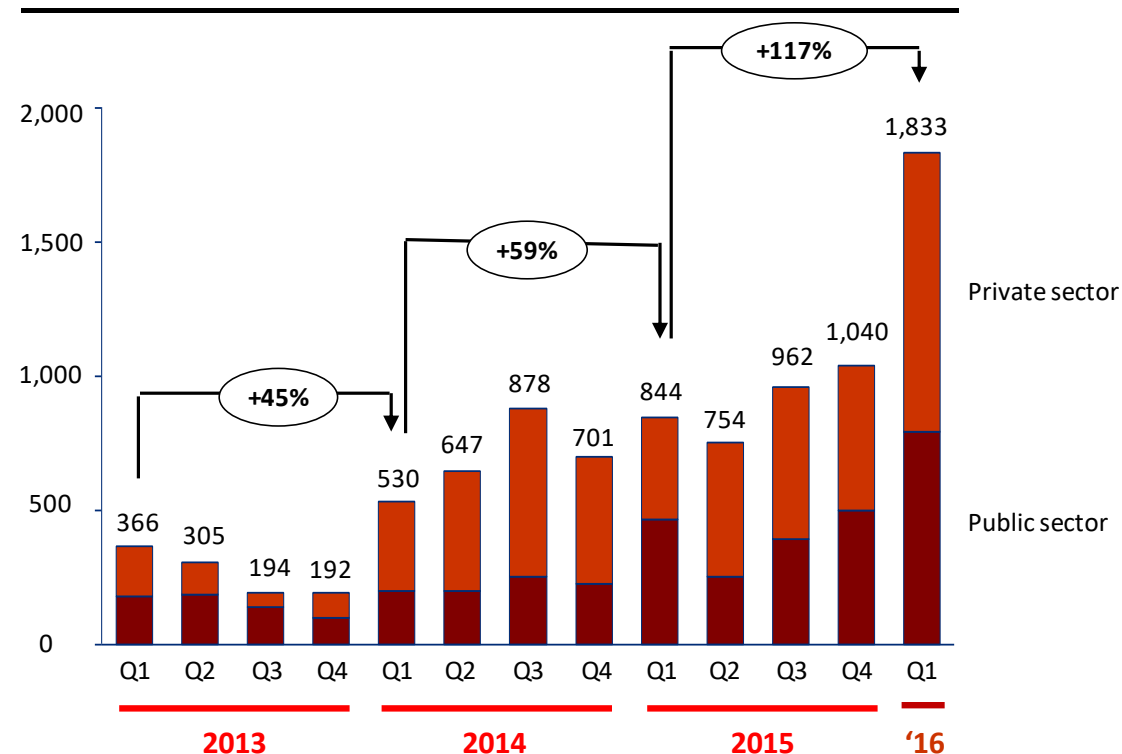
Key takeaway

- Household surveys provide only a single snapshot in time and are too expensive to conduct routinely
- Leverage/develop other routine sources of data (e.g. public and private distribution volumes, HMIS, etc.)

Public/Private ORS treatments* distributed



Public/Private zinc treatments* distributed



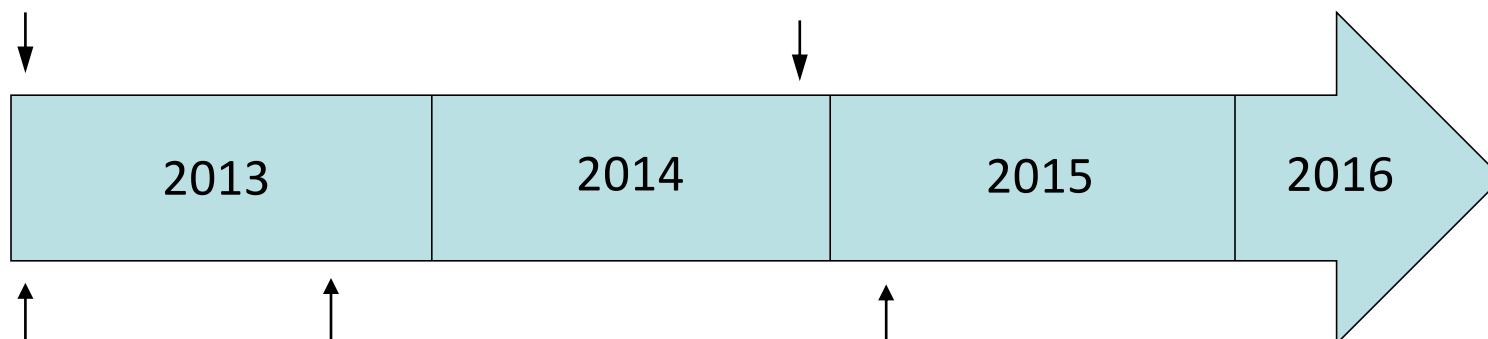
*Volumes are expressed in terms of "diarrhea treatments". 1 diarrhea treatment = 1 co-pack or 2L of ORS sachets or 10 zinc tablets

Co-pack introduction: Carefully plan co-pack switch with govt.; wind-down stock of singles, negotiate competitive prices, and support forecast/ordering

Kenya

Responsibility for quantification and orders of medicines devolved from federal government to counties

Director of Medical Services recommends co-pack as 1st line treatment. Central Medical Store winds-down central stock of single ORS and zinc units.



From 2013-15, work with healthcare facilities to **bundle single units into co-packs**

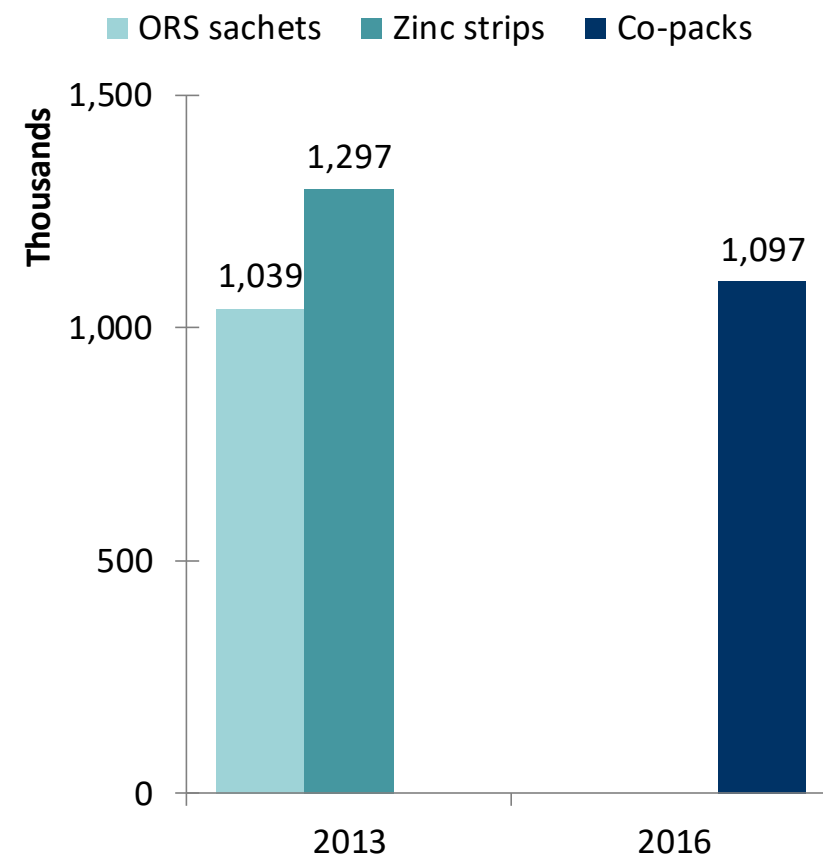


From 2013-15, worked with manufacturers to **develop and register co-packs**



Catalytic introduction of co-pack to smooth transition during tendering process. Competitive tendering and negotiation to reduce price from **\$1.62 for single units to \$0.62 for co-pack**

KEMSA ORS & Zinc Distribution Volumes*



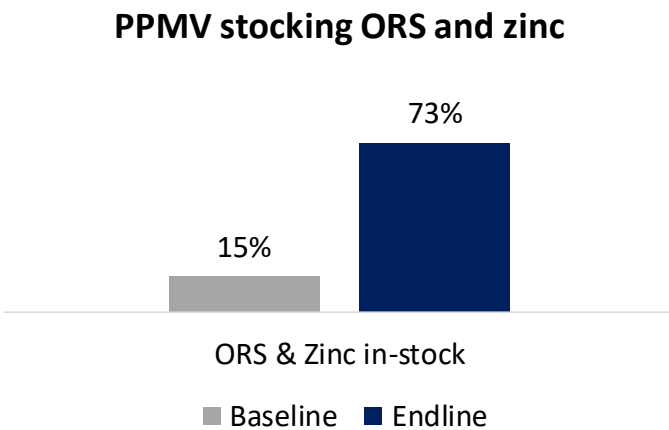
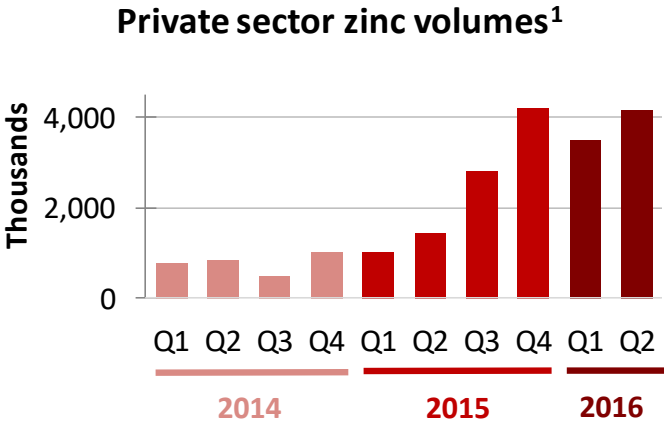
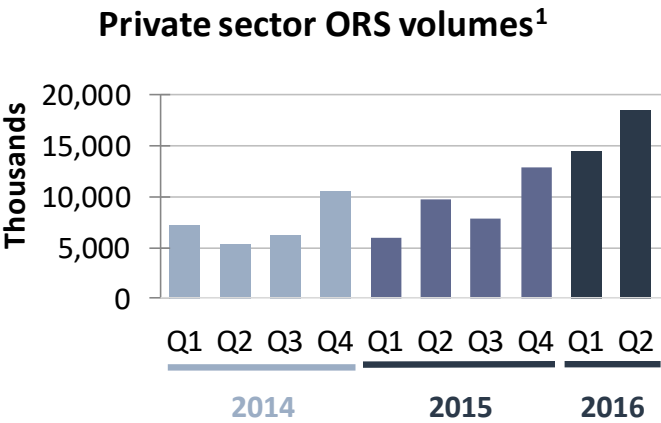
* Volumes are expressed in terms of "diarrhea treatments". 1 diarrhea treatment = 1 co-pack or 2L of ORS sachets or 10 zinc tablets

Private sector: Comprehensively address supply availability and provider/dispenser practices with multiple layers of interventions along the entire supply chain

Nigeria

Summary of private sector interventions along supply chain continuum in Nigeria and results

Regulation	Manufacturers and suppliers		Intermediaries	Providers and dispensers		
Supported NAFDAC to push existing ORS suppliers to switch to the low-osmolarity formulation	Technical support to introduce and register new L-ORS and zinc DT products, including co-pack	Incentive agreements with suppliers to implement a rural salesforce; sold ~2M ORS sachets and 1.9M zinc strips	Place reps at regional wholesale hubs to encourage purchase of ORS and zinc and distribute promotional materials	Incorporated diarrhea management in the mandatory pre-service training of PPMVs and Community Pharmacists.	Collaborated with the MOH, PCN, and NAPPMED to conduct 589 state-level trainings reaching 18,670 PPMVs	Worked with NAPPMED to conduct follow-up one-on-one detailing sessions with PPMVs



[1] Volumes are expressed in terms of “diarrhea treatments”. 1 diarrhea treatment = 1 co-pack or 2 ORS sachets or 1 zinc strip. Volumes are estimated based on sales data from partner suppliers.



Demand generation: Use consumer-design principles – right message, right place, right time, and right frequency

Key takeaway

- Align caregiver demand generation activities with provider and supply-side activities; healthcare providers are one of the most influential channels for shaping caregiver demand
- Ensure messages are appropriate for each communication channel. For mass media, focus on simple messages. Use interpersonal interactions to convey more complex messages on dosing and administration

Caregiver Campaign

7,000+ spots¹



3,000+ spots



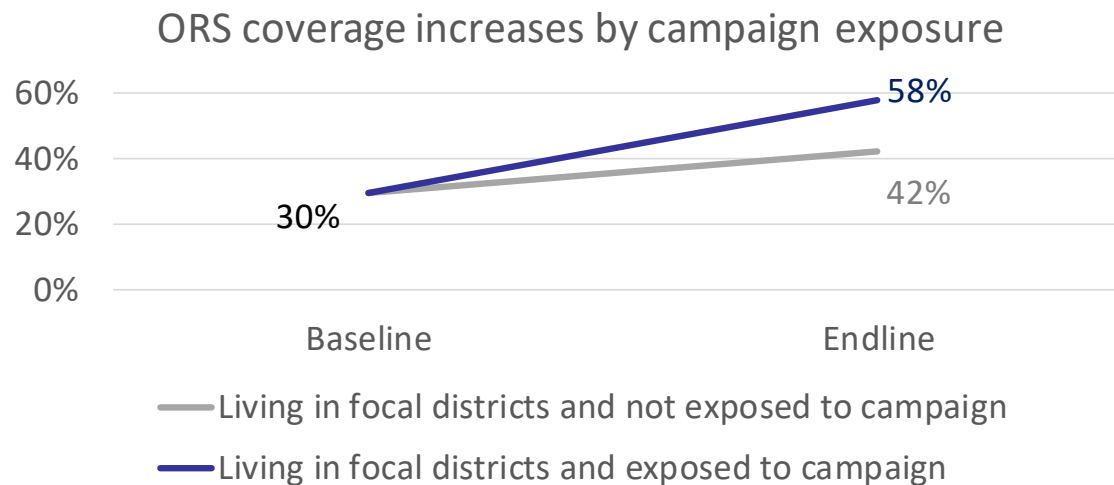
4M+ calls



200 buses
5,000 villages

38M exposed in UP
(29M rural);
59% coverage of
target audience

Demand generation campaign modified effect of other interventions²



[1] TV campaign (<https://youtu.be/347tF1gcDZE>)

[2] Lam, F., et al. (2019). "Effect of enhanced detailing and mass media on community use of oral rehydration salts and zinc during a scale-up program in Gujarat and Uttar Pradesh." *J Glob Health* 9(1): 010501.

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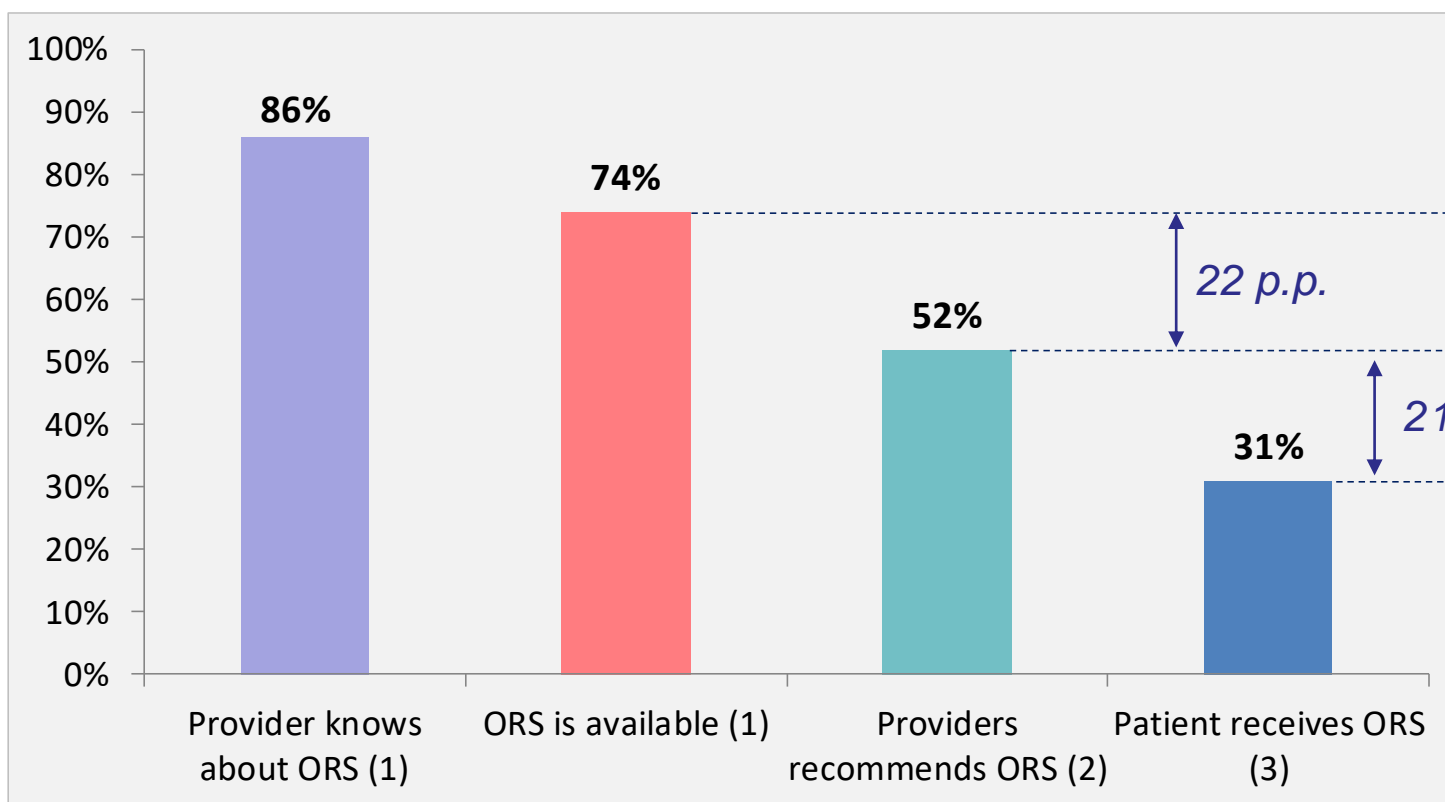
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Know-do gap

Percent of private providers/retailers that have heard about ORS vs. stocks ORS vs. recommends ORS vs. percent of children under-five with diarrhea in the last 2 weeks that received ORS



Hypotheses

- Negative perceptions about ORS (efficacy)
- Lower unit margin vs. other drugs (antibiotics, zinc)

1 Stock–Recommend gap

2 Practice–coverage gap

Hypotheses

- Patients present with multiple symptoms and providers don't ask about diarrhea (poor assessment skills)
- Patient prefers alternative treatment

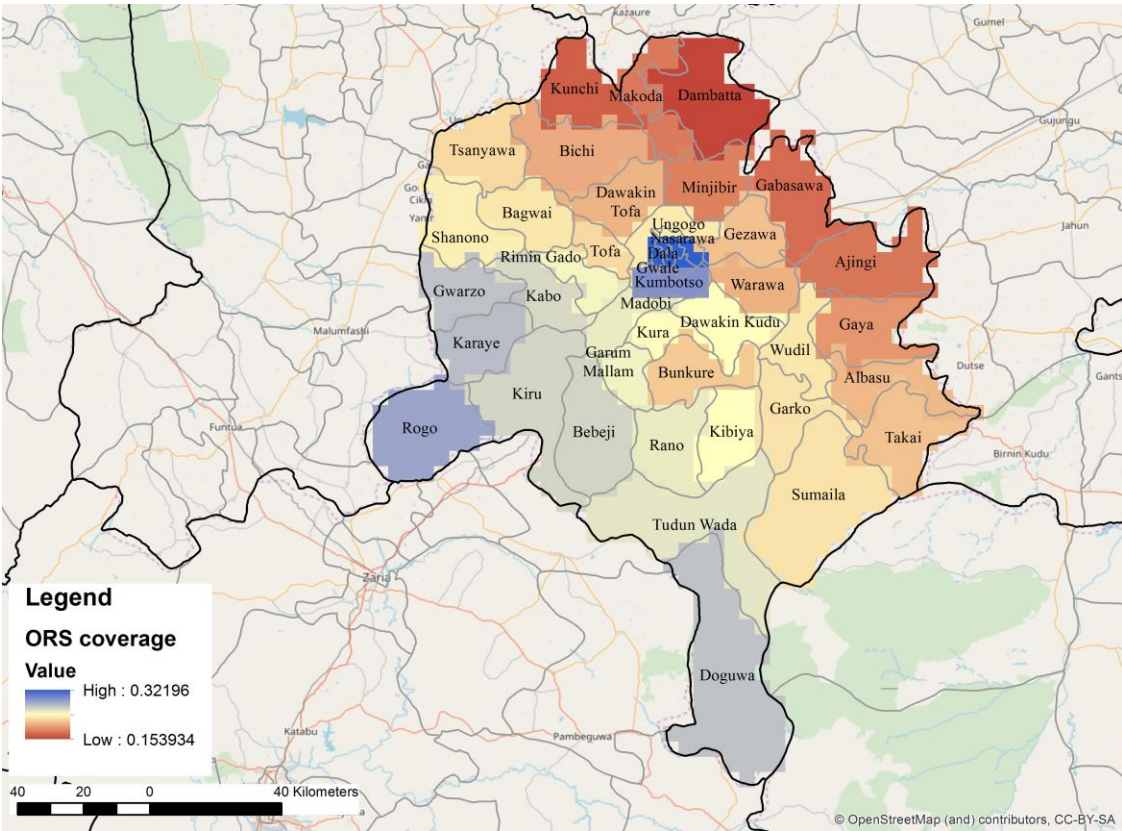
[1] CHAI Uganda (2014): Retail audit survey

[2] CHAI Uganda (2014): Standardized patient survey

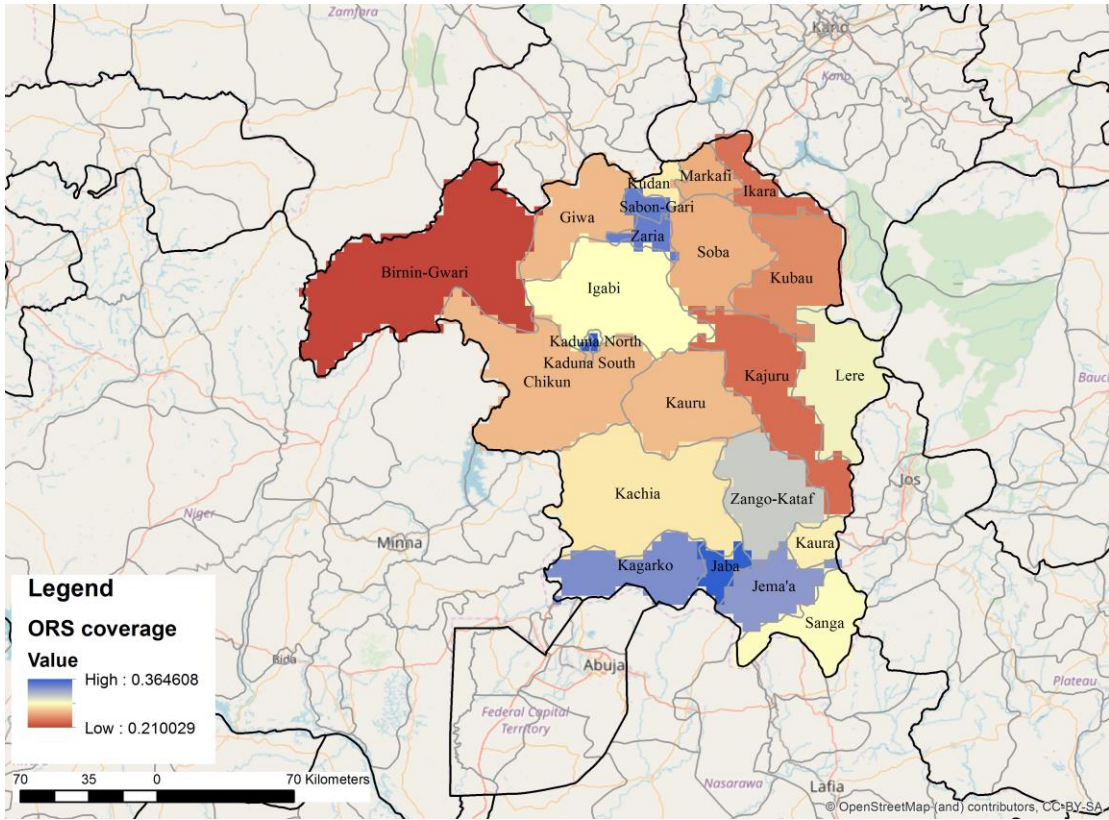
[3] CHAI Uganda (2014): Household survey

A more targeted approach may be important to continue to make progress, especially with limited resources and in countries where national coverage is high

ORS coverage by LGA in Kano¹



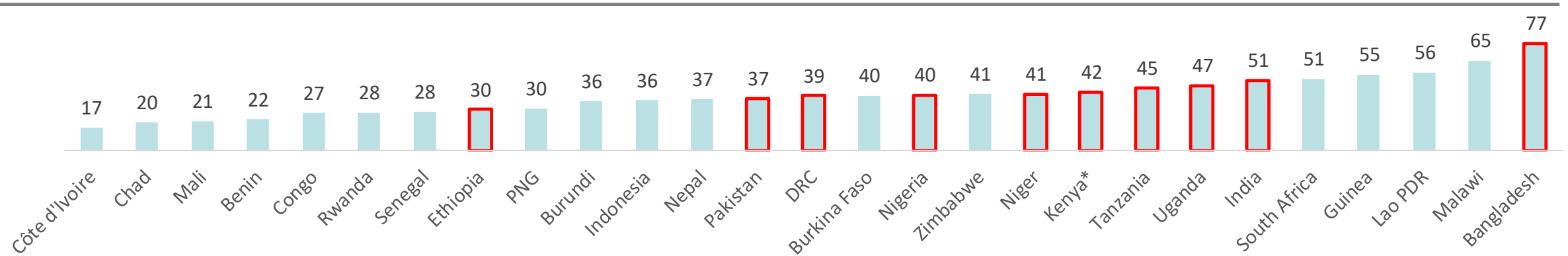
ORS coverage by LGA in Kaduna¹



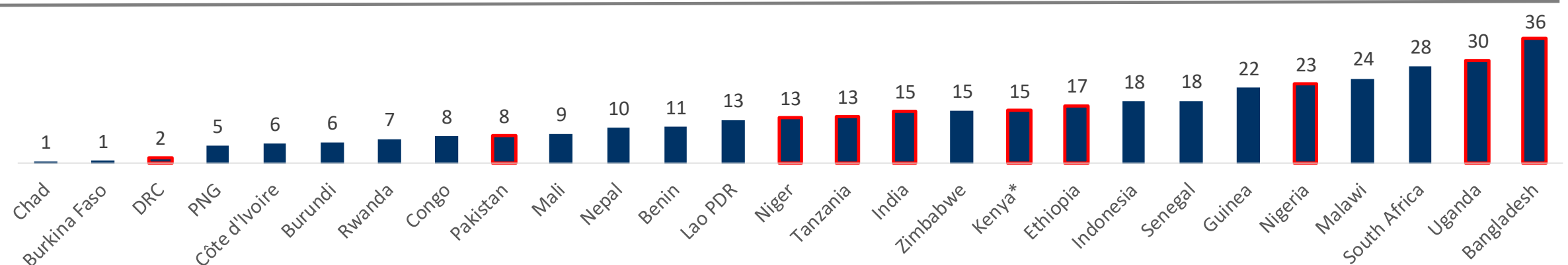
[1] Wiens KE, LBD Diarrhoea Collaborators, Hay SI, Reiner RC. Mapping geographic inequalities in oral rehydration therapy coverage in low- and middle-income countries, 2000-2017. The Lancet. (Under Review).

While significant progress has been made in initial 10 high-burden countries, zinc/ORS coverage is still well below GAPPD target (90%) and other countries are lagging behind

ORS coverage – Most recent DHS/MICS 2015-18¹



Combined ORS and zinc coverage – Most recent DHS/MICS 2015-18¹

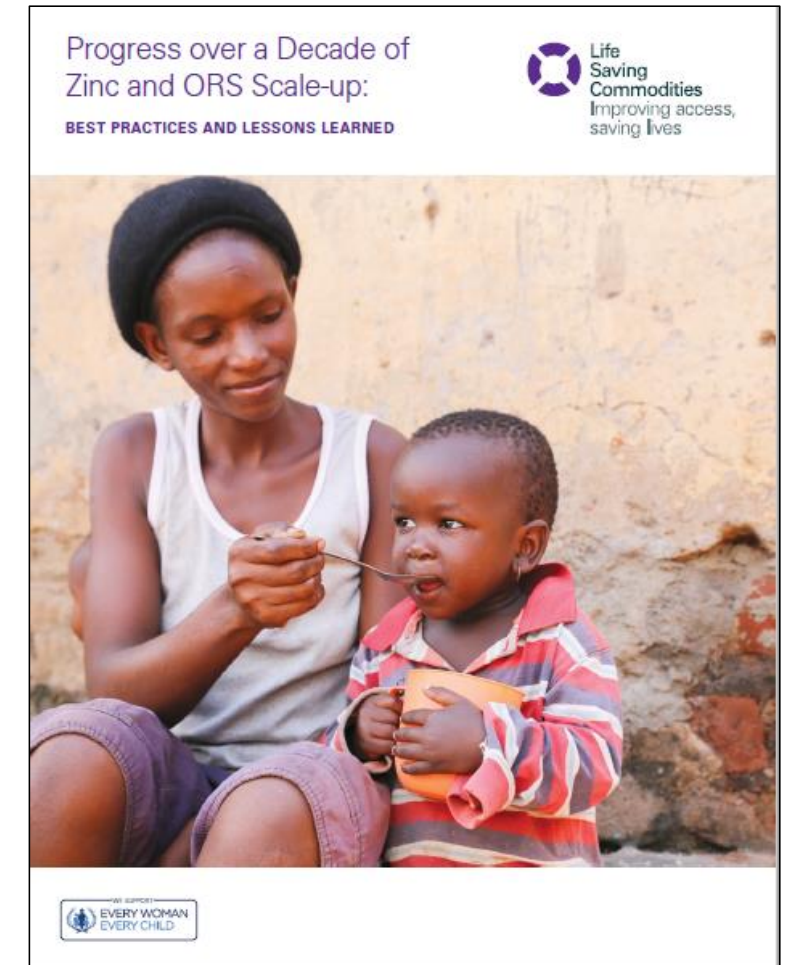


[1] <https://data.unicef.org/topic/child-health/diarrhoeal-disease/>

* KNBS/CHAI 2016 household survey

Results and lessons have been documented and disseminated through various channels including in-country meetings, publications, and international conferences

- **Local stakeholders:** Supported governments to host dissemination meetings and create reports summarizing results
 - **India:** <https://clintonhealthaccess.org/content/uploads/2017/03/CHAI-India-Diarrhoea-Program-Dissemination-Report.pdf>
 - **Nigeria:** https://clintonhealthaccess.org/content/uploads/2017/07/2137-EM-Program-Overview-with-State-Briefs-v9TC-SCREEN_FINAL.pdf
- **Global stakeholders:** Presented to Diarrhea & Pneumonia Working Group and contributed to a global report on Progress Over a Decade of Zinc and ORS Scale Up (<https://www.childhealthtaskforce.org/resources/report/2016/progress-over-decade-zinc-and-ors-scale-nancy-goh-joseph-addo-yobo-clinton>)
- **Publications:** Collection of four articles and editorial from Bob Black with the **Journal of Global Health** (<http://jogh.org/col-scaling-up-ORS-and-Zinc.htm>)
- **Conferences:** Symposium presentation at ASTMH 2018 with the Diarrhea Innovations Group



Acknowledgements

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- State governments of Gujarat, Madhya Pradesh, Uttar Pradesh, Bauchi, Cross River, Lagos, Kaduna, Kano, Katsina, Niger, and Rivers
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- Funders: Absolute Return for Kids, the Bill and Melinda Gates Foundation, ELMA Foundation, Global Affairs Canada, IKEA Foundation, the International Zinc Association, and the Norwegian Agency for Development Cooperation

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