

Defining an ORS/Zinc ‘co-pack’

Position paper

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Abstract

Co-packaging is the act of putting the elements of the currently recommended treatment for diarrhoea (ORS and zinc) in the same package. The co-packaging recommendation is likely to remain even if the precise recommendations for ORS or zinc change in the future. The current recommended elements of the treatment for diarrhoea are: low osmolarity ORS and 10-14 tablets of 20mg zinc sulphate tablets.

The key variants when considering co-packaging ORS and zinc are: the number and size of the ORS sachets and whether to include 10 or 14 zinc tablets.

The top-level conclusions of this paper are:

1. That 1 L ORS sachets are inappropriate for use in ORS/zinc co-packs.
2. Either 0.5 L or 0.2 L ORS sachets are a better match for user needs.
3. 0.2 L sachets have the advantage that they make up a cup-full of solution and so reduce the challenge of correct measurement. However, their cost relative to 0.5 mL sachets is higher.
4. The number of these smaller sachets that are included in a co-pack will depend on the duration of treatment required and affordability.
5. The currently recommended dosages for both ORS and zinc are a lot higher than is achieved in practice and this, together with cost/affordability considerations may influence the design of co-pack, as is the case for the co-pack in use in Zambia.
6. A blister pack of 10 zinc tablets meets WHO recommendations, offers lower cost and a more practical fit with manufacturing norms than 14 tablets.
7. More research is required in this area and future recommendations may change.

1. Introduction

In 2019, 15 years after first recommending that zinc sulphate be given as a co-therapy with Oral Rehydration Salts (ORS) to treat children suffering from diarrhoea,¹ the World Health Organization (WHO) changed its model Essential Medicines List (EML) and children's EML (EMLc) to recommend that ORS and Zinc (ORSZ) be co-packaged. This is an important step and an opportunity to catalyse progress. DefeatDD estimates that only 44 percent of children suffering from diarrhoea are treated with ORS; and fewer than seven per cent are treated with zinc.² Global coverage of ORSZ today is estimated to remain at around 15%³ at current rates of scale-up, it may take more than 30 years to reach 80% coverage.⁴ Whilst peer reviewed evidence on co-packaging - and even ORSZ co-therapy - is scant, co-packaging is now accepted to be an important, low cost innovation^{5 6} to support co-therapy, which WHO/UNICEF estimate could prevent deaths in up to 93% of diarrhoea cases.⁵ Co-packaging has the potential to promote optimal treatment of diarrhoea and improve adherence and coverage,⁵ improve dispensing practice,⁷ reduce unnecessary use of antibiotics,⁸ and thus save thousands of lives.^{5 9}

However, demand for co-packaged ORSZ products is still very low (see, for example UNICEF⁵). Co-packaged products are still relatively uncommon.¹⁰ While some countries have moved to 'bundle' ORS and zinc locally for specific initiatives^{11 12} co-packs remain rare or unavailable in many countries, according to ORSZCA's data gathering.¹³

Interest in the potential of co-packs is growing in the wake of the WHO model EML update: UNICEF's Market Supply Update (Sep 2022)⁵ reflects many of ORSZCA's current priorities; it is optimistic about the growth of the market for co-packaged products and expects UNICEF's own procurement of co-packaged ORS and zinc to increase in the coming years.⁵ UNICEF states it has procured 62m ORSZ co-packs since it first offered them in 2014; the recent UNICEF procurement call is seeking to identify more local sources of co-packaged ORS and Zinc and is open to more variants in terms of ORS sachet size.⁵ The funding environment to support procurement and distribution of ORS and Zinc is also improving, with the Global Financing Facility (GFF)¹⁴ and Global Fund¹⁵ both inviting bids to do

¹ Clinical management of acute diarrhoea (WHO/FCH/CAH/04.07). Geneva & New York: World Health Organization & United Nations Children's Fund; 2004. <https://apps.who.int/iris/handle/10665/68627>

² DefeatDD sourced at <https://www.defeatdd.org/blog/tracking-disparities-use-oral-rehydration-solution-treat-childhood-diarrhea>

³ <https://orszco-pack.org/data-evidence/#coverage>

⁴ <https://orszco-pack.org/data-evidence/>

⁵ <https://www.unicef.org/supply/media/13851/file/ORS-and-Zinc-Market-Supply-Update-September-2022.pdf>

⁶ <https://www.unicef.org/supply/stories/oral-rehydration-salts-and-zinc-co-packaging-offers-simple-solution-save-children-diarrhoea>

⁷ See <https://orszco-pack.org/data-evidence/#dispensing>

⁸ <https://orszco-pack.org/data-evidence/#antibiotics>

⁹ Drivers of the reduction in childhood diarrhea mortality 1980-2015 and interventions to eliminate preventable diarrhea deaths by 2030 Robert Black, Olivier Fontaine, Laura Lamberti, Maharaj Bhan, Luis Huicho, Shams El Arifeen, Honorati Masanja, Christa Fischer Walker, Tigest Ketsela Mengestu, Luwei Pearson, Mark Young, Nosa Orobato, Yue Chu, Bianca Jackson, Masee Bateman, Neff Walker, and Michael Merson, 2019 Sourced at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6815873/>

¹⁰ <https://orszco-pack.org/resources/manufacturers/>

¹¹ <https://bmcpublihealth.biomedcentral.com/articles/10.1186/s12889-016-3126-6>

¹² <https://orszco-pack.org/launch-singh#tr-en>

¹³ <https://orszco-pack.org/orsz-status/>

¹⁴ <https://orszco-pack.org/updates/>

¹⁵ <https://orszco-pack.org/2022/12/20/orszca-update-20-dec-2022/>

so. With the emphasis in recent years on Integrated Community Case Management (iCCM)^{16 17} children are increasingly treated in the home for diarrhoea and co-packs are an important tool for home use, with some already advocating distribution by CHWs pre-emptively, prior to symptoms,¹⁸ for home storage.

In summary, the opportunity to promote co-packaging of ORS and Zinc is high at present and a drive to promote discussion on what an ORSZ co-pack should contain is timely.

2. What elements should an ORSZ co-pack contain?

The 2019 WHO model EMLs (core and children's) were the first to recommend the co-packaging of ORS and Zinc. However, ORS and Zinc are still also listed separately. The co-packaging recommendation is independent of the current recommendation for the two components. This is important, because over time, the individual recommendations for ORS and Zinc may change. However, in these circumstances it is anticipated that the co-packaging recommendation would remain.

2.1 Low Osmolarity ORS

2.1.1 ORS formulation

In 2005, WHO and UNICEF recommended a switch to low-osmolarity ORS as the preferred formulation.¹⁹ This is now accepted as the ideal.²⁰ Whilst the addition of flavour and colour are accepted as making the resulting ORS solution more palatable for children,⁵ these attributes are currently seen as preferences, not recommendations. Public sector ORS products are less likely to be flavoured than their commercial versions. Recognising the importance of palatability, UNICEF has recently introduced flavoured ORS options to its catalogue.⁵

2.2 Zinc tablets

2.2.1 Zinc formulation

Zinc for diarrhoea may be given in syrup or tablet form; both dispersible and non-dispersible tablets are available, with dispersible tablets easier to give to children, mixed in a little breast milk or safe water. Tablets, in blister packs, rather than syrups, are the chosen component in co-packs currently available,¹⁰ most likely due to packaging practicalities, ease of dosage tracking and cost considerations.²¹

2.2.2 Zinc dosage and duration

Current WHO guidance on zinc dosage is 20 mg/day for 10-14 days for infants and children and 10 mg/day for infants under six months of age. No known trials have directly compared 10 vs 14

¹⁶ <https://www.icf.com/insights/health/using-iccm-saves-lives>

¹⁷ World Health Organization, A WHO / UNICEF Joint Statement Integrated Community Case Management (iCCM) - An Equity-Focused Strategy to Improve Access to Essential Treatment Services for Children, WHO, Geneva, June 2012.

¹⁸ <https://academic.oup.com/heapol/article-abstract/37/1/123/6410341>

¹⁹ World Health Organization, Diarrhoea Treatment Guidelines, International Science and Technology Institute, Arlington, January 2005

²⁰ <https://shopsplusproject.org/sites/default/files/resources/WHO-UNICEF%20Statement.pdf>

²¹ Zinc Treatment to Under-five Children: Applications to Improve Child Survival and Reduce Burden of Disease, Larson et al, 2008. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2740712/>

days;²² one study found no difference in zinc efficacy in under-5s comparing 5 and 10 day regimes.²³ Some commentators²⁴ have suggested that both the duration and dosage would benefit from review. The current dose of 20mg has no risk of toxicity, but can cause vomiting; some recent research by Dhingra et al has investigated a lower daily dose and found 10mg or even 5mg equally efficacious.²⁵ Pending the outcome of further research, this paper's working assumption is that the current recommendations on zinc prevail, as any potential change in the recommendations will take some time, if indeed it happens at all.

2.2.3 Number of zinc tablets in a co-pack

For a co-pack, the regimen and daily dose will affect the contents deemed ideal. A regimen of ten tablets over ten days is common, partly because it meets the WHO criteria, is lower cost than 14 days and possibly because manufacturers' blister packs are typically in 10s, making it easier to obtain and dispense.²² Practically speaking, researchers have typically found that caregivers administer zinc for fewer than the ten days recommended; for example, Nasrin et al (2005), in Bangladesh, observed an average of 8-day's adherence.²⁶ Roche et al (2015), in Guatemala, observed that carers receiving a co-pack with clear instructions were more likely to adhere to zinc for 10 days²⁷. However, as noted above, as low as 5 days has been found to be efficacious.

Thus, considering efficacy and conformity with the current WHO guideline alongside practical considerations and cost, a blister pack of 10 tablets of 20mg seems acceptable for co-pack contents, at least until a definitive body of research alters recommendations, which may take a considerable time.

3. How many sachets of ORS should an ORS/Zinc co-pack contain and what size should they be?

For a co-pack, ORS sachet size and number of sachets are interdependent, so will be discussed together. The WHO model EML is silent on the number and size of ORS sachets to be provided in a co-pack. This paper concentrates on options for ORS sachet size, and gathers evidence and opinion on the various sizes available as well as what might be the optimum number of sachets for a co-pack, bearing in mind aspects like cost, treatment duration, and practicalities of home use.

²² <https://rehydrate.org/ors/pdf/zinc-faqs.pdf>

²³ Zinc Treatment for 5 or 10 Days Is Equally Efficacious in Preventing Diarrhea in the Subsequent 3 Months among Bangladeshi Children, Dewan et al, 2010 Sourced at <https://academic.oup.com/jn/article/141/2/312/4743350>

²⁴ <https://orszco-pack.org/enablers-barriers-to-increased-ors-zinc-coverage/>

²⁵ Lower-Dose Zinc for Childhood Diarrhea — A Randomized, Multicenter Trial Dhingra et al, 2020 sourced at <https://www.nejm.org/doi/full/10.1056/NEJMoa1915905>

²⁶ Nasrin D, Larson CP, Sultana S, Khan TU. Acceptability of and adherence to dispersible zinc tablet in the treatment of acute childhood diarrhoea. *J Health Popul Nutr.* 2005;23:215–21. Sourced at <https://pubmed.ncbi.nlm.nih.gov/16262017/>

²⁷ Roche M, García Meza R, Vossenaar M (2015) An Intervention to Co-package Zinc and Oral Rehydration Salts (ORS) Improves Health Provider Prescription and Maternal Adherence to WHO-recommended Diarrhea Treatment in Western Guatemala

Figure 1. Example of co-pack currently distributed by Government Republic of Zambia



How much ORS should a co-pack provide for a diarrhoea episode?

The key variables in the total volume of ORS are the duration of a typical bout of diarrhoea and the dosage regime. Diarrhoea is defined as 3 or more loose stools in a day.²⁸ The recommendation is that children under two years should be given 50-100 mL of ORS solution after each loose motion while children from three to ten years of age should be given between 100-200 mL. Children over ten years of age and adults should drink ORS freely until the loose stools stop.²⁸ Lamberti et al (2012) estimated that in LMICs, diarrhoea in under 5s lasts from 4.3 days for mild episodes, 6.4 days for moderate and 8.4 days for severe episodes; however, 64.8% of episodes were mild, 34.7% moderate, and only 0.5% severe.²⁹ Zwisler et al (2013) found that Indian and Kenyan carers reported a duration of 3-4 days, with ORS typically given for 3 days.³²

An equally pertinent question is: how much ORS will a child drink in a 24 hour period? Zwisler et al³² found that carers reported children under-2 consumed 250 mL/day and 125 mL/day while 2-5 year olds consumed 250 mL and 375 mL/day in Kenya and India respectively (median values). Touchette et al (1990) reported that children consumed 387ml of rehydration fluid in the first 24 hours.

The question of daily consumption is not only relevant to estimate total need in a co-pack, but also relates to safety: general good practice is to discard ORS solution after 24 hours, to reduce the risk of contamination, particularly where there is no refrigeration, the case in most low-resource homes. Bearing this in mind, the conventional dispensing of two 1L sachets, or the inclusion of two 1 L sachets in a co-pack, would only cover treatment for 2 days (see Table 1). It would appear that the practice of dispensing two 1 L sachets of ORS for the home treatment of diarrhoea is an accident of history. 1 L sachets of ORS were designed for use in institutions at a time when the recommendation for the home

²⁸ [The treatment of diarrhea, a manual for physicians and other senior health workers](#). Archived 19 October 2011 at the [Wayback Machine](#) World Health Organization, 2005.

²⁹ Lamberti L, Fischer-Walker CF, Black RE. Systematic review of diarrhoea duration and severity in children and adults in low- and middle-income countries. *BMC Public Health* 2012, 12:276 Sourced at <https://bmcpubhealth.biomedcentral.com/articles/10.1186/1471-2458-12-276>

treatment of diarrhoea was that caregivers should make up their own sugar and salt solution (homemade ORS). By 2005, WHO was no longer recommending this.²⁸ Now it is recommended that all children should be given low osmolarity ORS (from a sachet) with homemade ORS becoming the treatment of last resort.

3.1 One litre ORS sachets

The most common sachet size for ORS makes up 1 L of solution. Early co-packs have tended to contain two 1 L sachets of ORS. In 2012 ColaLife questioned the convention of dispensing 1 L sachets of ORS for use in the home.³⁰ Greenland (2016) concluded in a behavioural trial that changing the product design or sachet size [1 L] might best encourage correct ORS mixing and use³¹. More recently, UNICEF has stated that the traditional ORS sachet size of 1 L may need review.⁵ As already stated, 1 L sachets were not designed for home settings, but for use in health facilities. In a health facility, where a number of children may have diarrhoea and where it is likely that staff have the means and skill to measure one litre of safe water correctly, it makes sense to mix ORS in batches of one litre. However, at home, a caregiver will generally be dealing with only one diarrhoea case at a time. In low resource settings, the home situation is very different, as some research has pointed out:

- The caregiver may not know what a litre is or have the knowledge to measure it correctly.^{31 32}
- Caregivers may not have the means to measure a litre of water accurately.^{33 32 34}
- Safe water is a precious commodity; bringing water to the home and making it safe takes time and resources.^{31 32}
- Caregivers may be reluctant to make up a full litre of ORS as their experience is, that this is more than a child will drink in 24 hours.^{31 32}
- Caregivers who know the guidance to throw away unused portions are reported to see this as a waste of medicine (ORS) and/or a waste of safe water.^{31 32}
- 2 x 1L sachets will only cover 2 days, if prepared in one go and disposed of after 24 hours as per the usage instructions. This does not support the message that treatment should continue daily while diarrhoea persists.³¹

Despite these serious issues, 1 L sachets are still the most common size used in most currently available ORS/Zinc co-packs.

3.2 500 mL ORS sachets

Because of growing reservations about 1 L sachets for the treatment of diarrhoea in the home, an increasing number of ORS/Zinc co-packs are being manufactured with four 500 mL ORS sachets. For example, UNICEF Supply Division can now supply co-packs with 500 mL sachets.⁵

³⁰ <https://www.colalife.org/2012/04/24/going-off-piste/>

³¹ Greenland, K., Chipungu, J., Chilengi, R. *et al.* Theory-based formative research on oral rehydration salts and zinc use in Lusaka, Zambia. *BMC Public Health* **16**, 312 (2016). <https://doi.org/10.1186/s12889-016-2984-2>

³² Zwisler G, Simpson E, Moodley M. Treatment of diarrhea in young children: results from surveys on the perception and use of oral rehydration solutions, antibiotics, and other therapies in India and Kenya. *J Glob Health* 2013;3(1):010403. doi: 10.7189/jogh.03.010403 [published Online First: 2013/07/05] <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3700033/>

³³ [A picture is worth a 1000 words: visualizing the challenges of effective diarrhoea treatment](#)

Assuming a child drinks around 400 mL of ORS a day,^{32 34 35} this allows treatment for four days with a reduced risk of contamination of the ORS solution if one sachet is prepared for each 24 hour period.

A disadvantage of this sachet size is that it requires the caregiver to understand what 500 mL is and to have a vessel that measures 500 mL. Vessels that measure 500 mL are not common in poor households.^{31 32 33}

3.3 200 mL ORS sachets

Among the few studies available, the 200 mL sachet size has been a stated preference of caregivers³² and has been seen as a useful innovation and a format worth pursuing.^{31 36 5} This size was well received in ColaLife's work in Zambia by caregivers and health staff and has been consistently procured in co-pack format by the Zambian government since 2018. See Case Study below. In addition to addressing the points raised above, a 200 mL sachet makes a typical cup-full of ORS solution; this further reduces the risk of contamination and inaccurate measuring. Cups are generally available even in the poorest of households which makes measuring the correct amount of water less of a challenge. The co-pack produced for the government in Zambia (Figure 1) has a 200 mL measuring functionality built into the packaging. See Figure 2.

Figure 2. The co-pack currently distributed by Government Republic of Zambia has a built-in measuring functionality for the 200 mL ORS sachets it contains



3.4 Number of ORS sachets to include in a co-pack

Returning to an appropriate number of sachets for a co-pack, when moving from two 1 L sachets to smaller sachets, there appears to be an inclination to focus on the overall quantity of ORS provided by the sachets rather than the duration of the treatment they provide. So, the tendency currently is to supply enough to make up two litres of fluid: four 500 mL sachets or ten 200 mL sachets. UNICEF's recent procurement tender asked for co-pack offerings with ten 200 mL sachets. Table 1 shows the impact of different sachet sizes on the duration of treatments they offer and the wastage of ORS and

³⁴ Touchette PE, Elder J, Nagiel M. How much oral rehydration solution is actually administered during home-based therapy? *J Trop Med Hyg.* 1990 Feb;93(1):28-34. Sourced at <https://pubmed.ncbi.nlm.nih.gov/2304127/>

³⁵ [Dr Olivier Fontaine \(personal communication\)](#)

³⁶ Design thinking to improve rational use of Oral Rehydration Salts: Lessons from an innovative co-packaged diarrhoea treatment kit. Ramchandani R, Berry S, Berry J, Pratt B A, Saka A, Black R E (submitted for publication)

safe water implied by their use. The model spreadsheet, on which Table 1 is based, is available [here](#). The model has the number of loose stools per day, which determines the guideline total daily consumption, as a variable.

Table 1 shows that two 1 L sachets only allow two days' treatment and potentially considerable wastage of solution (and, from the carer's point of view, safe water). However, ten 200mL sachets may support treatment over at least 2.5 days and up to 10 days, depending on the child's age and consumption. Four 500 mL sachets or eight 200mL sachets appear to offer adequate duration and minimal wastage alongside the potential for improved safety and ease of mixing.

Table 1: Impact of ORS sachet size on duration of treatment and wastage of ORS and safe water (based on 4 diarrhoea episodes a day)

1 Treatment guidelines and assumed loose stools per day

Age of child (years)	Dosage guidelines per loose stool (mL)		Loose stools per day	Total daily consumption (mL)	
	From	To		From	To
<2	50	100	4	200	400
2-10	100	200	4	400	800

2 Duration of treatment (days) provided by:

Age of child (years)	Two 1 L sachets*		Four 0.5 L sachets**		Six 0.5 L sachets**		Six 0.2 L sachets		Eight 0.2 L sachets		Ten 0.2 L sachets	
	From	To	From	To	From	To	From	To	From	To	From	To
<2	2.0	2.0	4.0	4.0	6.0	6.0	3.0	6.0	4.0	8.0	5.0	10.0
2-10	2.0	2.0	2.5	4.0	3.8	6.0	1.5	3.0	2.0	4.0	2.5	5.0

3 Wastage of solution (mL) = wastage of ORS and safe water

Age of child (years)	Two 1 L sachets*		Four 0.5 L sachets**		Six 0.5 L sachets**		Six 0.2 L sachets		Eight 0.2 L sachets		Ten 0.2 L sachets	
	From	To	From	To	From	To	From	To	From	To	From	To
<2	1,200	1,600	400	1,200	600	1,800	0	0	0	0	0	0
2-10	400	1,200	0	400	0	600	0	0	0	0	0	0

* assuming instructions are followed and a whole sachet is mixed with 1 litre of safe water and unused solution is discarded after 24 hours

** assuming instructions are followed and a whole sachet is mixed with 0.5 litre of safe water and unused solution is discarded after 24 hours

4. Cost considerations

A significant proportion of the cost of an ORS sachet is the cost of the sachet envelope itself. This means that smaller sachets are more expensive than larger ones relative to the amount of ORS they contain. Cost considerations, as well as need and practicality, will influence the number of sachets of different sizes deemed ideal. See the Zambia case study. A further consideration is that research that does exist in this area shows that the actual amount of ORS successfully administered at home in a day tends to be lower than that recommended.^{34 32, 31}

5. Conclusions

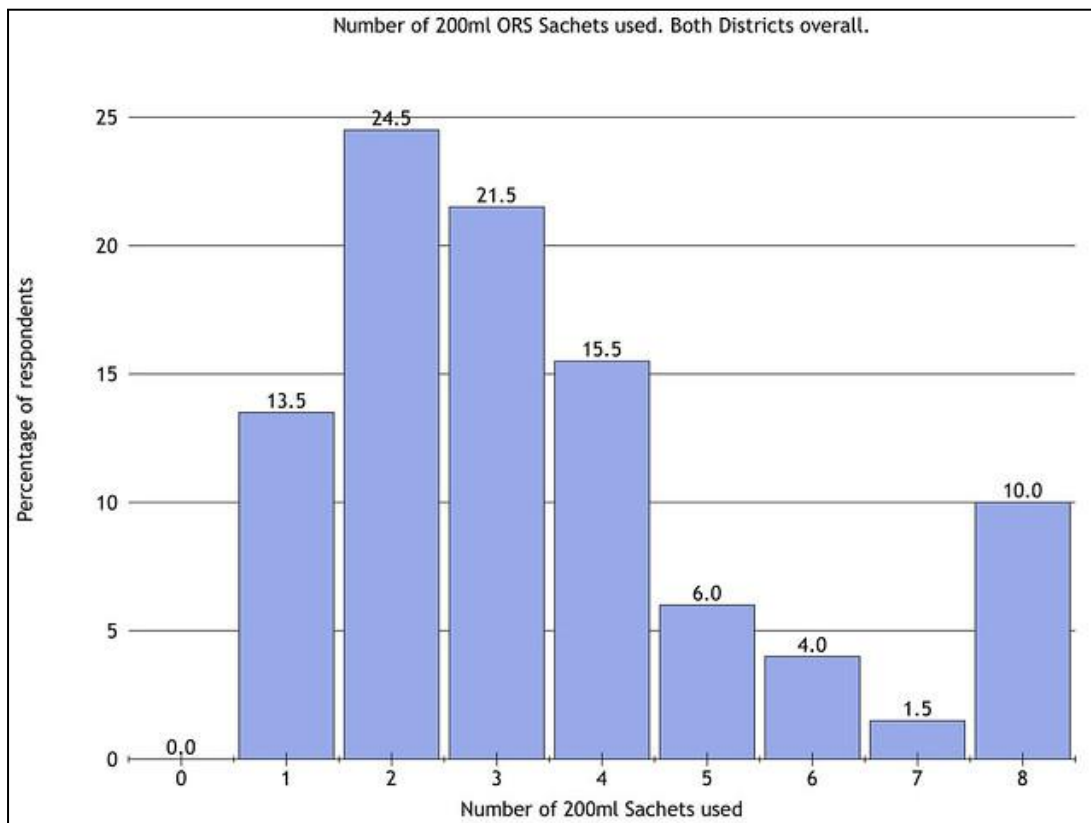
This position paper makes it clear that the design of co-packs with two 1 L sachets of ORS is likely more based on convention than on an analysis of need, practicality, caregiver behaviour and cost considerations. As such, 1 L sachets are not considered appropriate for co-packs; either 500mL or

200mL sachets are preferable. While more research is needed in this area, the move by UNICEF and some manufacturers towards smaller sachets seems reasonable, from both a clinical point of view and looking at practical matters, such as ease of use in the home and disinclination of carers to waste medicine and safe water. Although both ORS and Zinc tablets are low cost, both separately and when co-packaged, manufacturers, governments and consumers alike will be sensitive to cost considerations. Given this, ORSZCA should encourage a move away from the strict adherence to a total provision of two litres of ORS in co-packs, in favour of matching co-pack contents to typical duration of diarrhoea episodes, daily ORS consumption by children, safety considerations and ease of accurate mixing in the home.

6. CASE STUDY - ColaLife’s research in Zambia

In the Zambia trial^{37 38} eight 200 mL sachets were provided in a prototype co-pack, based on an assumption of 400 mL of solution used in a day, over 4 days, together with cost considerations. At the endline, caregivers were asked how many sachets they had actually used in their child’s diarrhoea episode. The responses are summarised in Figure 3.

Figure 2. Number of 200 mL ORS sachets used by caregivers³⁹



Source: Ramchandani, R, Berry S, Berry J et al Design thinking to improve rational use of oral rehydration salts: lessons from an innovative co-packaged diarrhoea treatment kit BMJ Innov 2023;0:1–12. doi:10.1136/bmjinnov-2023-001081. In press.

³⁷ [ColaLife Operational Trial Zambia Endline Survey Report](#), Ruralnet Associates, 2014.

³⁸ Ramchandani R, Berry S, Berry J, et al Emulating value-chains of fast-moving consumer goods to improve uptake of co-packaged ORS and zinc for childhood diarrhoea: evaluation of the ColaLife trial BMJ Innovations Published Online First: 06 June 2022. doi: 10.1136/bmjinnov-2021-000914 <https://innovations.bmj.com/content/early/2022/06/05/bmjinnov-2021-000914>

³⁹ The case for 200 mL ORS sachets <https://colalife.org/200ml>

The trial analysis interpreted this data as follows:

- Only 10% said they used all eight sachets. Considering they are outliers, some of these caregivers may have used all eight sachets because this was the number supplied in the co-pack. Alternatively, they may have stated they used eight as they thought that was the expected answer.
- 75% of caregivers said they used only four sachets or fewer.

The Zambia trial gave further insights:

- The average duration of treatment among caregivers at baseline (receiving two 1 L sachets of ORS) was 2.75 days.
- Among the cohort of caregivers who used only four 200 mL sachets or fewer, the average duration of treatment was 2.78 days.

As affordability was found to be crucial, for a private sector offering,⁴⁰ the scale-up version of the co-pack in Zambia contains four 200 mL sachets. This has been the case since 2015 and now pertains to the format purchased by the government for free distribution in health centres.

In 2018, three years into the scale-up, co-pack users were surveyed again and a handful of respondents said they would have liked more than four 200 mL sachets.

This case study, together with affordability considerations, points towards an optimum number of six 200 mL ORS sachets to include in an ORS/Zinc co-pack. This would still fall short of providing the full recommended dosage (see Table 1) but would meet practical use at home (Figure 3).

⁴⁰ IDInsight Mapping the Kit Yamoyo demand curve, 2013. Available: <https://www.colalife.org/wp-content/uploads/2021/11/00-Rural-Demand-for-Kit-Yamoyo-Final-Report-12-Nov-13-IDinsight.pdf>

Version control

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