TANZANIA EVALUATION UNDER EADSI

In Tanzania, we carried out the evaluation in Singida (intervention region), where the ADDO program was being scaled up under a decentralized model, and compared it with Mara (control region), which still had unaccredited shops, *duka la dawa baridi* (DLDB), in operation. We selected the two regions because they are comparable in several health and socioeconomic indicators. The decentralized ADDO implementation model was evaluated in 30 shops in Singida region, while 30 shops in Mara served as the control. Baseline and endline quantitative data collection on unaccredited drug shops and ADDOs in Singida and Mara used shop audits to assess availability and mystery shoppers to evaluate dispensing quality; 120 mystery shoppers in each region presented at unaccredited drug shops or ADDOs using the scenario of a child with simple malaria or nonbloody diarrhea.

Availability of antidiarrheal products

Oral rehydration solution (ORS) is the key product recommended for managing nonbloody diarrhea in children in Tanzania. In Singida, the intervention district, the availability of this product increased by 15% (from 72% at baseline to 83% at endline) following the intervention. In the control district, Mara, there was no increase. Recently a number of different child health programs in developing countries have been promoting the use of zinc in nonbloody diarrhea in children. In Singida, where such programs did not exist, the availability of this product increased from zero to 28%. However, in Mara, the control region, ORS availability remained static, while zinc tablet availability jumped from 9% to 52% (p<0.05), due to the start of another regional initiative targeting diarrhea.in the control district where such programs did exist, the product increased by a larger margin. The table shows availability of antidiarrheals.

**Percentage of Unaccredited Drug Shops and ADDOs with Antidiarrheals Available at Baseline and Endline**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Tracer drug | Singida  Pre # (%) | Singida  Post # (%) | Mara  Pre # (%) | Mara  Post # (%) | Singida difference  (percentage points) | Mara difference (percentage points) | Between-group difference (percentage points) | P-Value |
| ORS | 23(72) | 24(83) | 23(70) | 22(70) | 11 | 0 | 11 | *p=0.204* |
| Zinc tablets 20mg | 0 | 8(28) | 3(9) | 17(52) | 28 | 43 | –15 | ***p<0.05\**** |

Table 3: Availability of antidiarrheal medicines in Singida and Mara before and after ADDO rollout

\*Difference between regions was statistically significant.

***Management of nonbloody diarrhea***

The use of ORS and zinc is the recommended treatment for diarrhea. Overall, the mystery shopper exercise showed that the management of nonbloody diarrhea improved in Singida. For example, the dispensing of antibiotics for nonbloody diarrhea decreased by 23% (98% baseline to 76% at end line) while in Mara, the control district, it remained relatively unchanged (84% baseline to 87% endline). The use of ORS increased from 20% to 33% in Singida, while Mara recorded a marginal difference pre and post intervention. There was no significant increase in the regions in the use of zinc, another recommended product for nonbloody diarrhea. This came as a surprising result for Mara, which had an intervention to promote the use of zinc running concurrently with the ADDO program. Although not statistically significant, these results show that although the management of nonbloody diarrhea improved marginally in the intervention district, practices still fall far short of the expected standard of care. Further intervention in this area is necessary.

***Quality of dispensing services***

Singida showed some significant improvements in the quality of dispensing for both malaria and diarrhea compared to Mara. Similarly, for nonbloody diarrhea, there was statistically significant improvement in Singida for giving instructions on how to take the medications and giving information on how to look for danger signs. Other indicators measuring dispensing services showed no or minor improvement.

**Quality of dispensing services Singida vs. Mara—nonbloody diarrhea**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Indicator | Singida Pre  #(%) | Singida Post  # (%) | Mara Pre  # (%) | Mara Post  # (%) | Singida difference (percentage points) | Mara difference (percentage points) | Between-group difference (percentage points) | P-Value |
| Provider asked about child symptoms | 32(78) | 42(78) | 30(67) | 38(62) | 0 | –5 | 5 | *P=0.229* |
| Provider asked if the child was taking any other medicines | 11(27) | 9(17) | 11(24) | 14(23) | –10 | –1 | –9 | *P=0.559* |
| Provider gave instructions on how to take the medications | 24(59) | 46(58) | 25(56) | 36(59) | –1 | 3 | 2 | *P= 0.140* |
| Provider gave information on how to look for danger signs | 4(10) | 10(19) | 3(7) | 1(2) | 9 | –5 | 14 | ***P<0.05\**** |
| Provider dispensed antibiotic | 36(88) | 39(80) | 26(68) | 54(88) | –8 | 20 | –28 | *P=0.198* |
| Provider dispensed ORS | 8(20) | 11(23) | 7(16) | 11(18) | 3 | 2 | 1 | *P=0.492* |

\*Difference between regions was statistically significant.

**UGANDA EVALUATION UNDER EADSI**

In Uganda, we selected Kibaale (66 shops) as the intervention district and Mpigi (64 shops) as the comparison district. As in Tanzania, the two districts had similar demographic indicators.

Availability of antidiarrhea medicines

The number of ADS in Kibaale stocking ORS increased from 50% to 87%, while ADS stocks of zinc tablets increased from 6% to 62%. The number of drug shops in Mpigi also experienced smaller increases in the availability of antidiarrhea medicines (78% to 88% for ORS and 13% to 24% for zinc). Table 11 gives specific percentage availability of different drugs and makes statistical comparisons of the significance of the observed changes. The results for ORS are not statistically significant while those for zinc tablets are.

**Availability of Anti-diarrheal Products in Kibaale and Mpigi**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Tracer drug | Kibaale Pre # (%) | Kibaale Post  # (%) | Mpigi Pre  # (%) | Mpigi Post  # (%) | Kibaale difference (percentage points) | Mpigi difference (percentage points) | Between group difference (percentage points) | P-Value |
| ORS | 33(50) | 39(87) | 50(78) | 36(88) | 37 | 10 | 27 | *p=0.576* |
| Zinc tabs | 6(6) | 28(62) | 8(13) | 10(24) | 56 | 11 | 45 | ***p<0.05*** |

\*Difference between regions was statistically significant

**Presentation at ICIUM 2011**: <http://www.inrud.org/ICIUM/ConferenceMaterials/1069-rutta-_b.ppt>

**Abstract**

1069

Can the Management of Uncomplicated Diarrhea at the ADDOs in Tanzania be Further Improved?

Rutta, Edmund R (1); Kimatta, Suleiman (1); Liana, Jafary (1); Philip, Amani (2); Johnson, Keith (1)

1: Management Sciences for Health 2: Tanzania Food and Drugs Authority

**Problem statement:** The accredited drug dispensing outlet (ADDO) program has increased access to affordable quality medicines and pharmaceutical services in retail drug outlets in underserved areas of Tanzania. Program monitoring and evaluation have showed improved medicine availability and dispensing; however, anecdotal evidence suggested continuing problems with diarrhea management.

**Objective:** To determine how ADDO dispensers manage uncomplicated diarrhea in children under five

**Design:** Quantitative data collection was performed in 2010 using a mystery shopper scenario in the Ruvuma region, where the program had operated for seven years, in the Singida region with one year of ADDO operations, and in the Mara region, which had no ADDOs (control). Ruvuma data from 2004 came from a retrospective record review.

**Setting:** 30 randomly selected ADDOs from Ruvuma, 60 each in Singida and in Mara

**Intervention:** Ruvuma and Singida dispensers received training in 2003 and 2009, respectively, on how to manage uncomplicated diarrhea in children under five as part of ADDO accreditation. ADDO dispensers in both regions received supportive supervision on diarrhea management. Drug shop workers in Mara received no training or supervision.

**Outcome measures:** Percentage of uncomplicated diarrhea encounters in which antibiotics or appropriate treatment using oral rehydration solution were dispensed

**Results:** In Ruvuma in 2010, cases managed according to treatment guidelines did not change from the 2004 levels of 29%; in Singida, the percentage of encounters in which uncomplicated diarrhea was managed appropriately rose from 20% at baseline in 2009 to 42% at endline; no change was observed in Mara (25% at baseline compared with 27% at endline). The percentage of uncomplicated diarrhea encounters that included dispensing of an antibiotic declined from 98% at baseline to 76% at endline in Singida, while it remained constant in Mara (87% at baseline and 84% at endline). The percentage of diarrhea cases in which metronidazole was dispensed by ADDOs in Ruvuma declined from 53% in 2004 to 42% in 2010.

**Conclusions:** Managing uncomplicated diarrhea with oral rehydration solution increased and antibiotic dispensing decreased after the ADDO intervention in Ruvuma and Singida; however, practices still fall well short of the recommended national treatment guidelines. Qualitative research suggests that other factors beyond ADDO dispensing skills and knowledge may fuel these practices, such as the prescribing practices at public and private health facilities, consumer pressure and preference for metronidazole, and profit motive. Stakeholders recommended further assessments to understand the ADDO dispenser/health facility prescribers and consumer dynamics and its impact on antibiotics use in diarrhea management.

**Funding source:** Management Sciences for Health/East African Drug Seller Initiative, funded by a grant from the Bill & Melinda Gates Foundation