Effectiveness of adding a WASH component on the ambulatory treatment of Severe Acute Malnutrition

ACF research update from DRC, Pakistan and Chad (2012-2017)
3 ACF studies

• Study 1: Household Water Treatment in DRC

• Study 2: Household Water Treatment in Pakistan

• Study 3: WASH kit in Chad
What is ambulatory treatment of Severe Acute Malnutrition?
What is ambulatory treatment of Severe Acute Malnutrition?
Context WASH’NUT

➢ Knowledge gap
  • Diarrhea
  • Stunting
  • Wasting?
  • African context?

➢ “WASH in NUT” strategy
Study 1

Effectiveness of adding PUR® on the ambulatory treatment of Severe Acute Malnutrition

Research from DRC (2012-2013)
Study 1: DRC

Study location:
Popokabaka, Bandundu Province, DRC

Quasi-experimental panel design:
Comparative study with 2 arms (total 207 children):
- control group: ambulatory treatment of SAM without complication
- intervention group: same + PUR

Main results:
Groups not similar at baseline
The average treatment time decreased by 4 days (30.4 to 26.4 days, 13%)
Results not statistically significant
Study 2: Pakistan

Effectiveness of adding a Household Water Treatment component on the ambulatory treatment of Severe Acute Malnutrition

Research from Pakistan (2016-2017)
Study location

Dadu district, Sindh, Pakistan

Sindh Province:
✓ U5 mortality: 104/1000
✓ 48% of U5 stunted
✓ 15.4% wasted
✓ 3.6% severely wasted

ACF activities
✓ CMAM
Methodology

- *Cluster Randomized Control Trial at health centers*
  => 4 study arms:
  1. SAM treatment + jerry can (control)
  2. SAM treatment + jerry can + **Aquatab**
     - Chlorine tablets 67mg (20L), 7/week
  3. SAM treatment + jerry can + **P&G Purifier of Water (P&G PoW)**
     - Flocculent + chlorine disinfectant sachets (10L), 14/week
  4. SAM treatment + jerry can + **Ceramic candle water filter**
     > Micro-filtration, 1 time distribution
Results – Baseline Characteristics

- No major differences between the groups
- Poor latrine coverage (30-42%)
- No issue with water access
- Almost no water treatment in any group (boiling <3%)

- Around 900 children included (225 per group)
Results - Water quality

- Water quality measured at one unannounced household visit (approx. 4-6 weeks into the treatment)

- Better water quality in PUR and Aquatab groups

- Adherence to treatment insufficient: 34-37% still contaminated in these groups

- <50% showing residual chlorine

- Control and Ceramic filters similar (50-55% contaminated)

- Tests did not count contamination levels (presence/absence tests), and were done only one time per household.
Results - Diarrhea

• Diarrhea prevalence recorded at each weekly visit

• No significant reduction of diarrhea except for Aquatabs
Results - Recovery

- **Significant increase of recovery rates** in all water treatment arms (+17-22 percentage points)

- Best results for Aquatab group, but no significant difference between intervention arms.

- Diarrhea prevalence reduces OR within 120 days by 60%
Length of Stay and Weight Gain

• Initial hypothesis: decrease of diarrhea leading to reduction of Length of Stay and to increase in Weight Gain

• No effect detected by the study

• Longitudinal prevalence of diarrhea was found to increase length of stay by 11.1 days per prevalent week
Limitations

• Length of Stay higher than initially considered

• Pakistan National Protocol exit criteria: MUAC>11.5cm for transfer to Supplementary Feeding Program, but no SFP so MUAC>12.5cm without time limit. Decision of research team to limit at 120 days and >12.5cm

• Possible seasonable bias with more Aquatab & P&G PoW enrolled in February-March, and more Control & Ceramic still in treatment during the lean & rainy season (July-October).

• Limited water quality testing in frequency and quantitative.
Discussion

• Increased nutritional recovery

• All types of water treatment found with significant higher recovery rates

• No decrease in diarrhea (only 2-6% lower in treatment groups), although diarrhea prevalence increased Length of Stay in care and reduced odds of recovery.

• New hypotheses:
  • Other pathways need to be addressed (hands, food…)
  • Better adherence by promotion at each visit
Study 3

Effectiveness of adding a Household WASH package on the ambulatory treatment of Severe Acute Malnutrition

Research from Chad (2015-2016)
## WASH Kit

### Content

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe drinking water storage container</td>
<td></td>
</tr>
<tr>
<td>Soap</td>
<td>750g x 3 months</td>
</tr>
<tr>
<td>Aquatabs</td>
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<tr>
<td>A plastic Cup</td>
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<td>Instructions leaflet</td>
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Study setting

- **Area of intervention**
  - Mao and Mondo health districts, Chad
  - GAM = 15.4%
  - SAM = 2.5%
  - Diarrhea = 32%

- **ACF nutritional activities**
  - Among other activities, ACF supports health centers for outpatient therapeutic program (OTP) on SAM
Objectives of the study

To assess the effect of the household WASH kit on:

1 – **WASH Kit adherence**, tested through observational HH study (2 visits 4 weeks – 8 weeks)

2 - **Morbidity outcomes** (diarrhea, vomiting, cough, fever) following recall of the mother at each weekly health center visit

3 – **Nutritional outcomes**:
   ✓ Weight-gain and time-to-recovery
   ✓ Proportion of cured children
   ✓ Proportion of relapses 2 and 6 months after recovery
Methods

- **Study design:** Cluster randomized controlled trial embedded in a routine nutritional program

**Control**
- = routine nutritional program in 10 HC

**Intervention**
- = same + “household WASH kit” in 10 HC
Results - Admission

- **1603** children included to the study:
  - **Control group**: 758 children in 10 health center
  - **Intervention group**: 845 children in 10 health center
Admission characteristics
Results – WASH kit adherence

Note: Residual chlorine tested 0.2 – 1 mg/l (WHO)
Results - Nutritional outcomes
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<td>Follow up 2 months</td>
<td>13.1</td>
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<td>Follow up 6 months</td>
<td>0.3</td>
<td>2.8</td>
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Research operational challenges

Human resources

Shortage in RUTF

Nutritional protocol adherence
Conclusions

• **Improving Kit use:** still a challenge

• **Nutrition outcome:**
  • Increasing proportion of recovery (curation rates) among non responders
  • Pathways? => Microbiological stool analyses required

• **Ensuring sustainability:**
  • No effect on relapse
  • Other interventions (Wata kit, solar...) at community level?

• **Operational recommendation:**
  • Areas with high level of non-responders/low recovery rate
Other & Further research…

- DDMAS Chad
- TISA Sénégal
- Engaging with new partners…
Thank You…