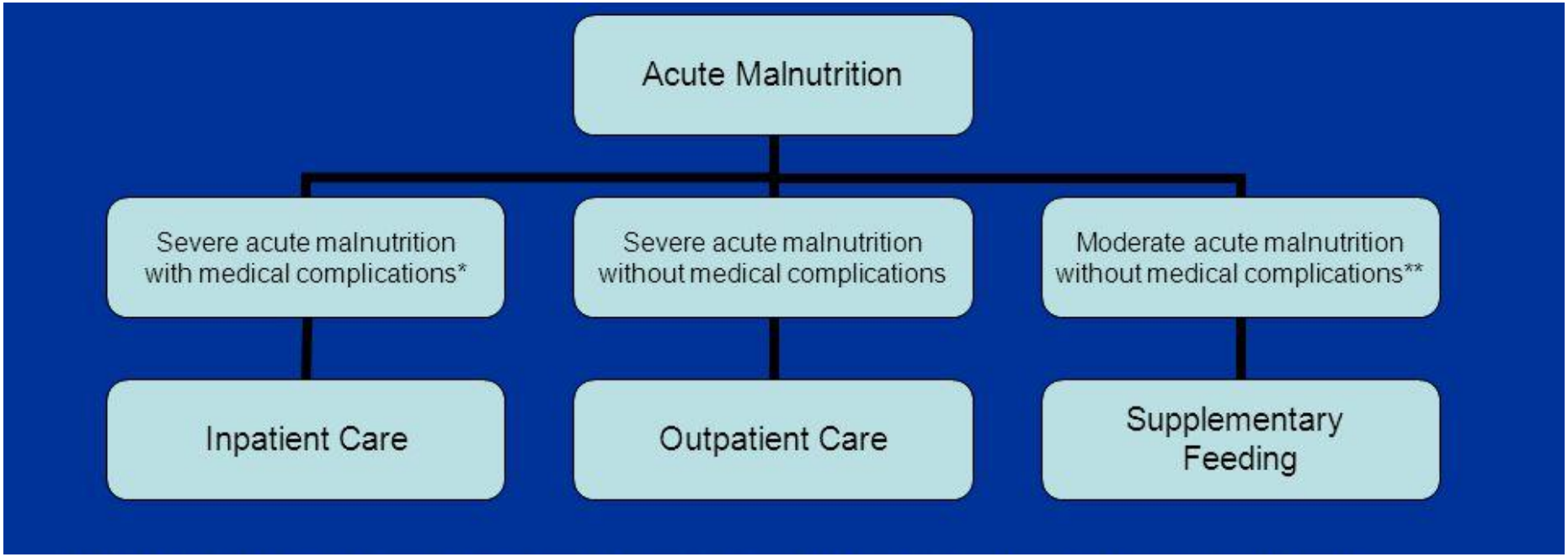
Effectiveness of adding a WASH component on the ambulatory treatment of Severe Acute Malnutrition

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?



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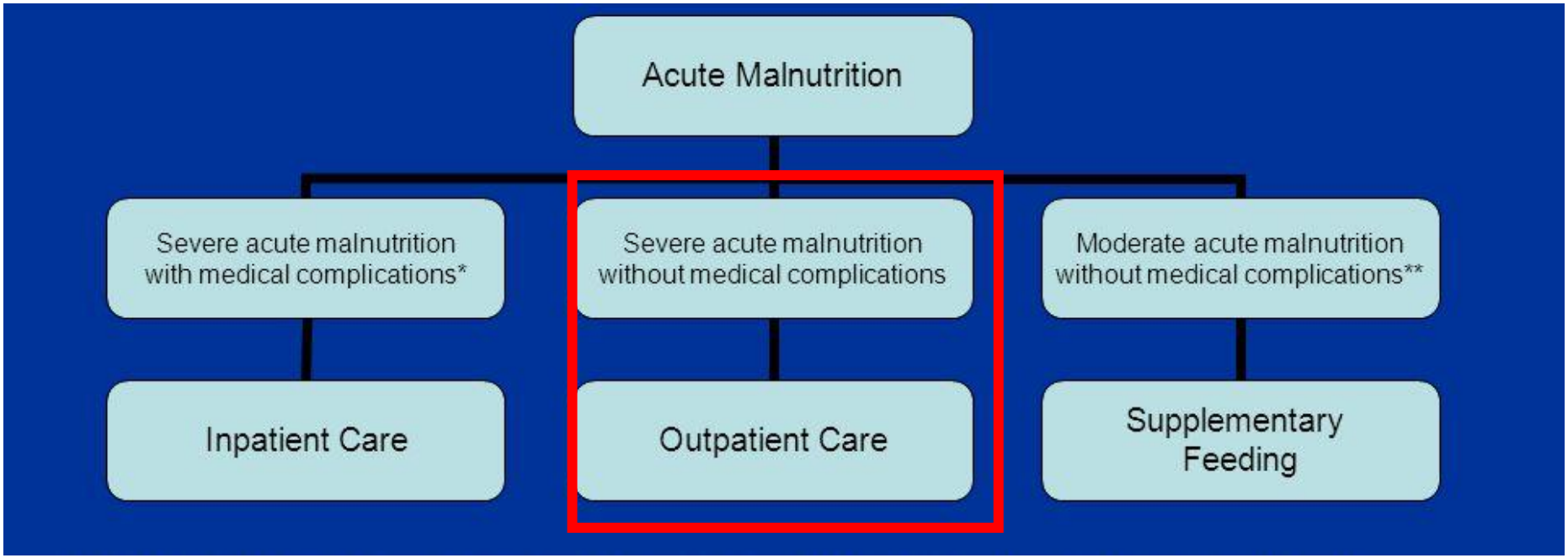


Context WASH'NUT

- 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)

JOHNS HOPKINS
BLOOMBERG SCHOOL
of PUBLIC HEALTH

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)

JOHNS HOPKINS
BLOOMBERG SCHOOL
of PUBLIC HEALTH

Study location

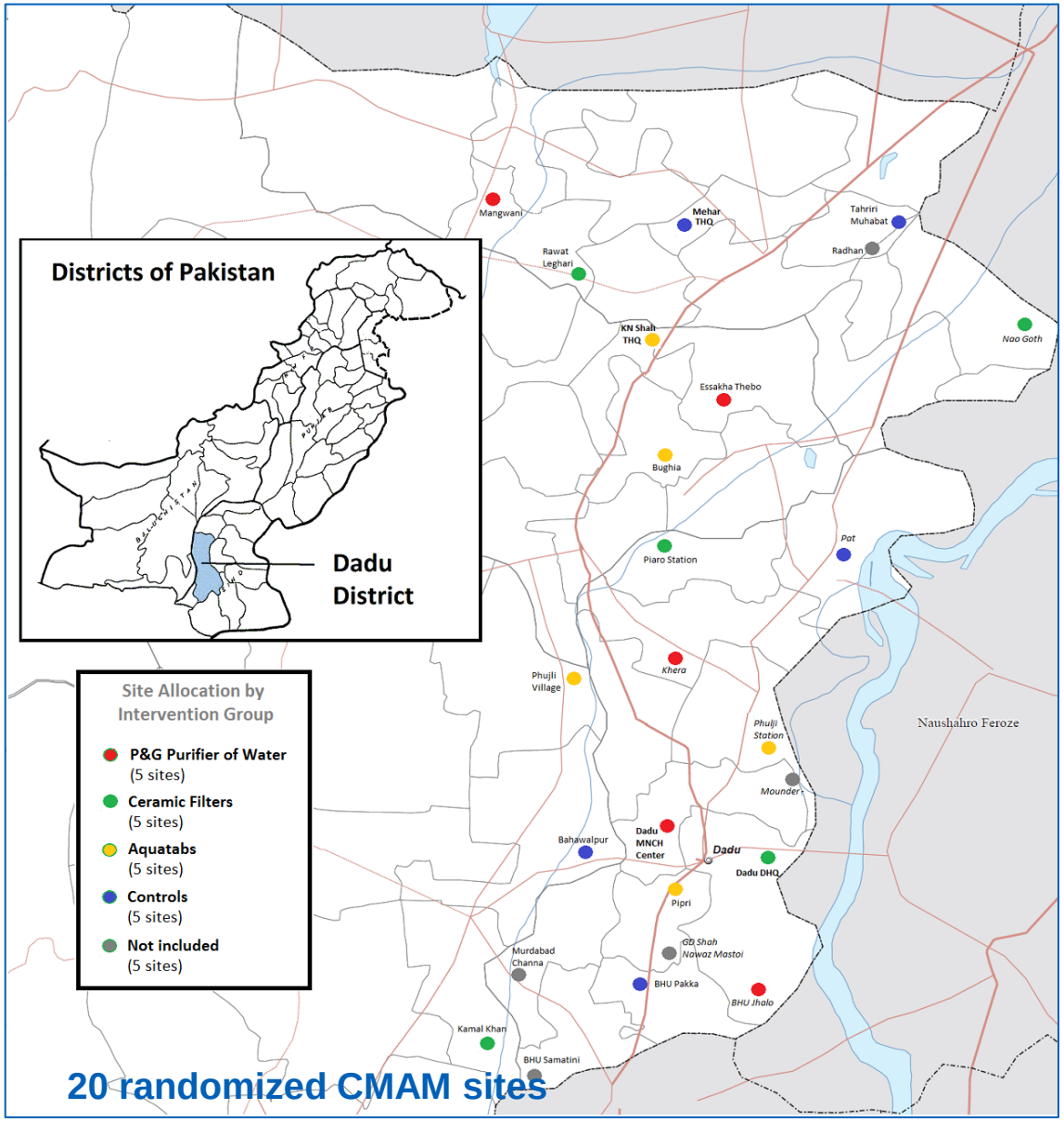
Dadu district, Sindh, Pakistan

<u>Sindh Province</u>:

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

<u>ACF activities</u>

- ✓ 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)

INSTITUTE OF TROPICAL MEDICINE ANTWERP

ACTION CONTRE LA FAIM
ACF INTERNATIONAL
sous l'égide de
INSTITUT DE FRANCE

ASRADD

WASH Kit

Content
safe drinking water storage container
Soap 750g x 3 months
Aquatabs / 3 months
A plastic Cup
Instructions leaflet

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**:

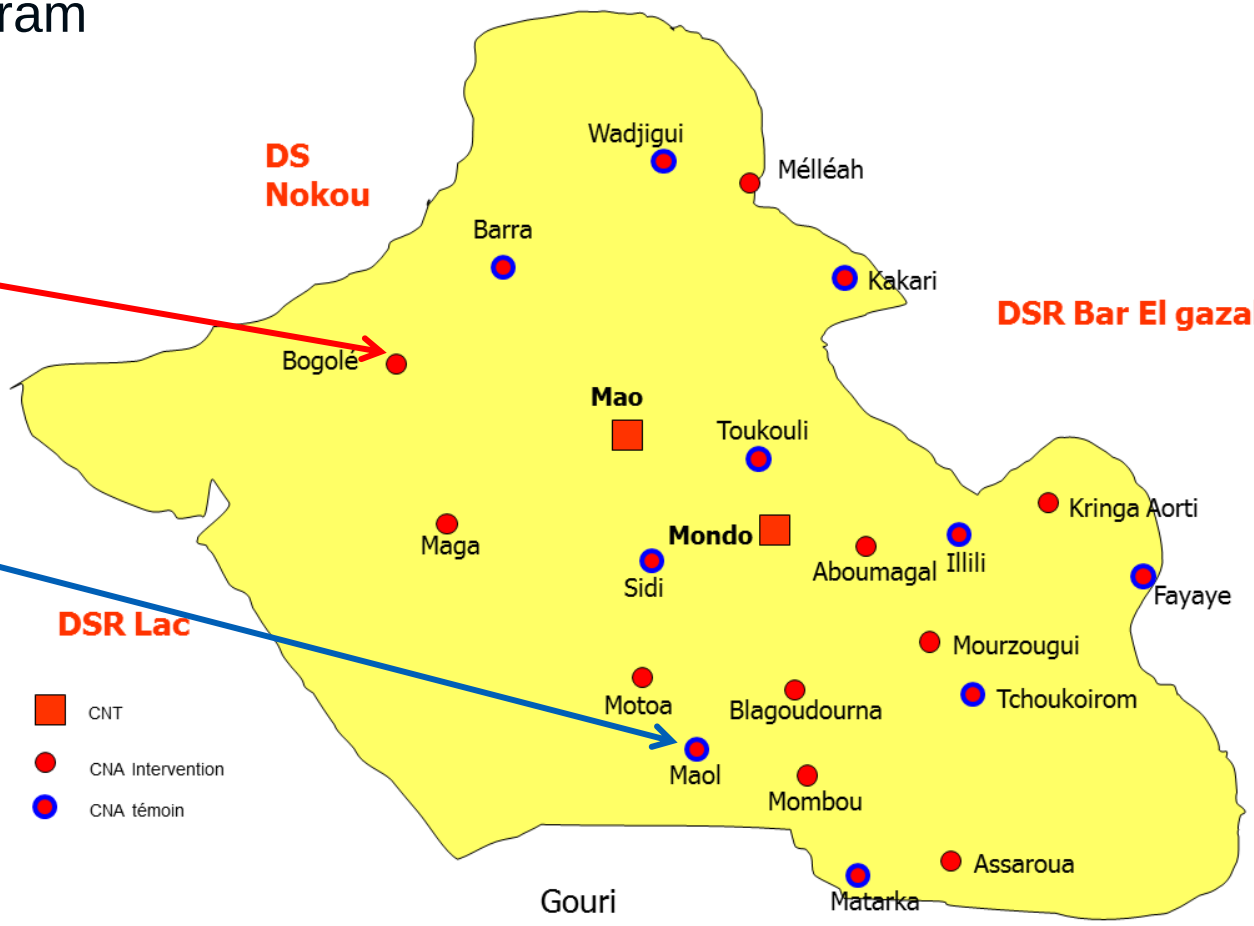
- ✓ Weight-gain and time-to-recovery
- ✓ Proportion of cured children
- ✓ Proportion of relapses 2 and 6 months after recovery

Methods

- **<u>Study design</u>:** Cluster randomized controlled trial embedded in a routine nutritional program

Control
= routine nutritional program in 10 HC

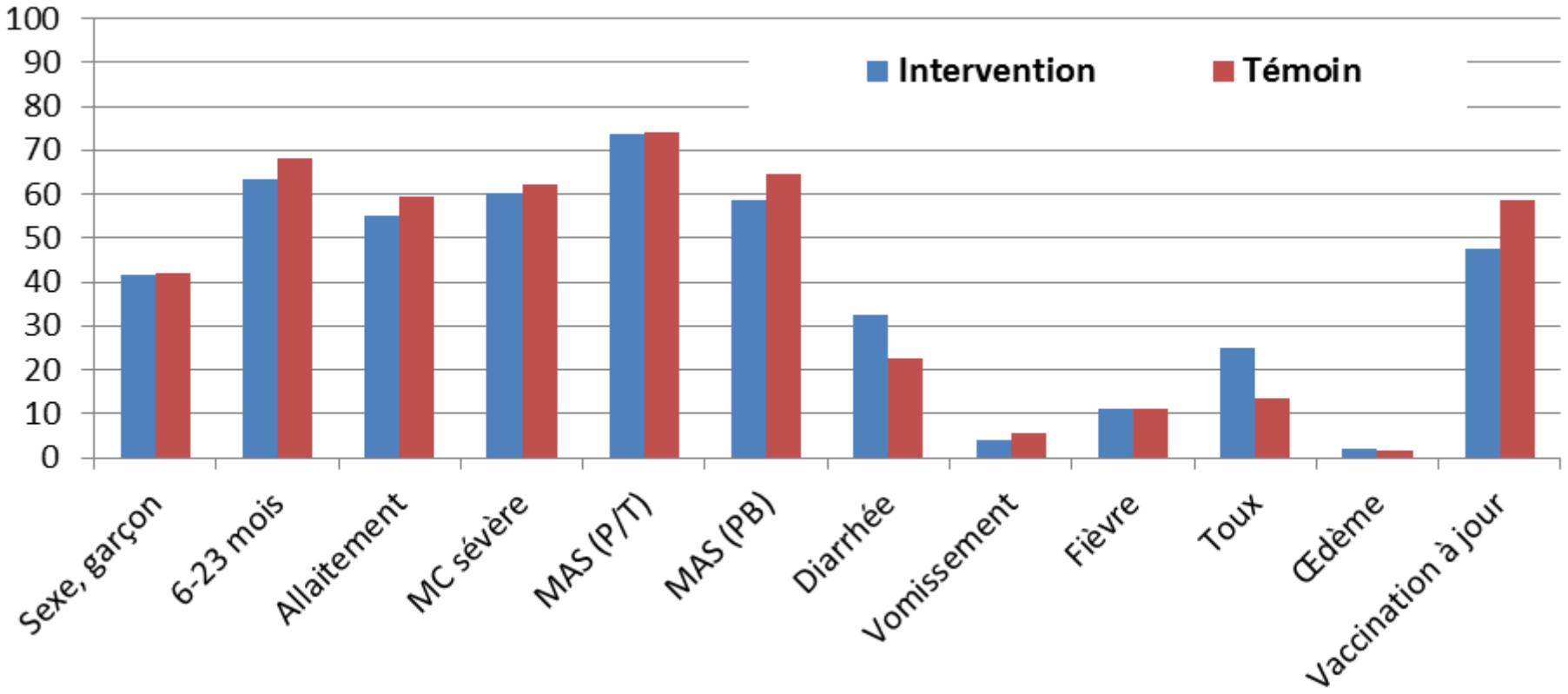
Intervention
= same **+** "**household WASH kit**" in 10 HC



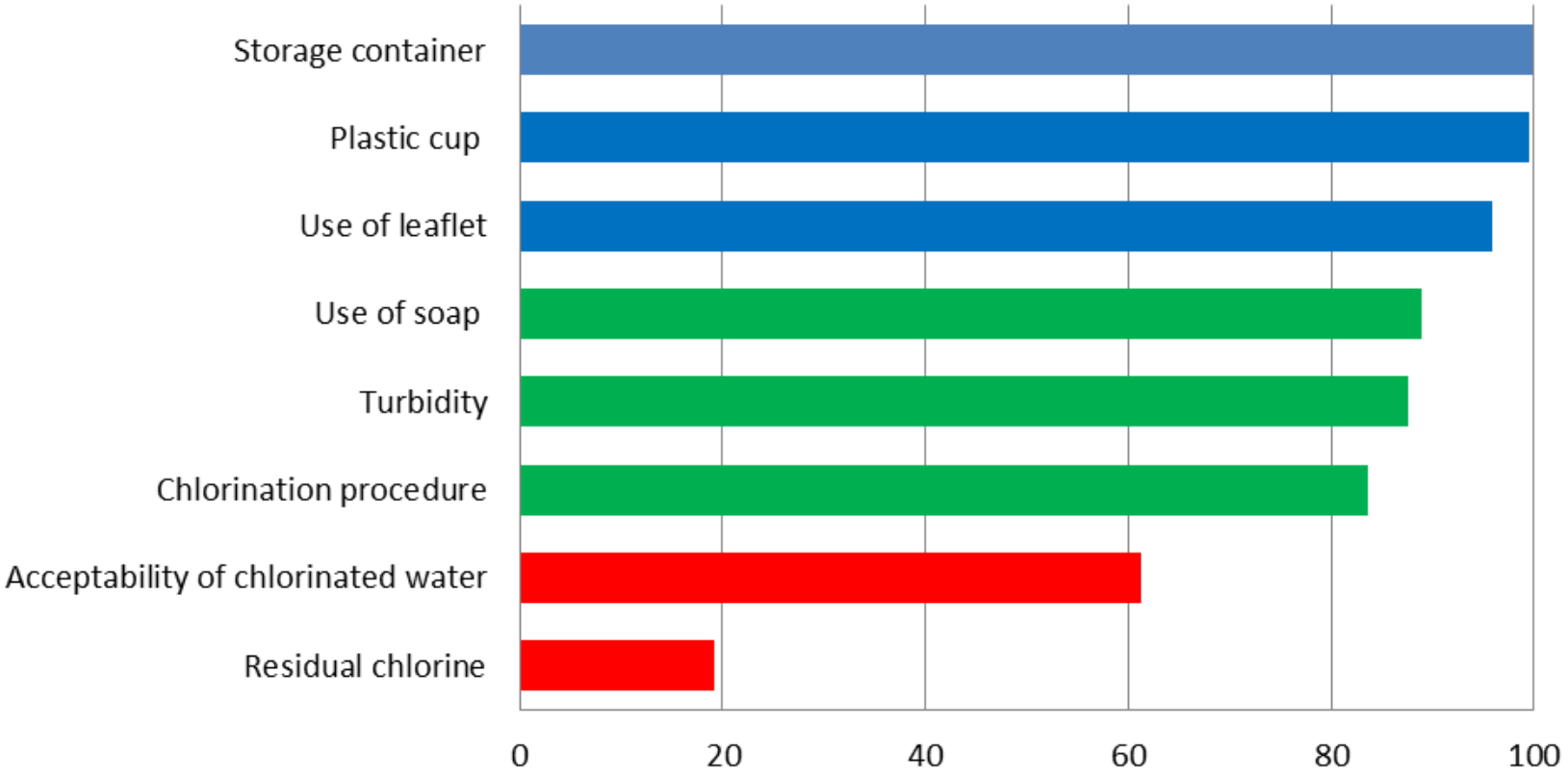
Results - Admission

- **1603** children included to the study:
  - *Control group*: **758** children in in 10 health center
  - *I*ntervention group: **845** children in 10 health center

Admission characteristics



Results – WASH kit adherence



Note: Residual chlorine tested 0.2 – 1 mg/l (WHO)

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Time-to-recovery (days)	51.7	56.1	0.038

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Discharge type (%)			
Recovered	93.1	82.9	**0.036**

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Discharge type (%)			
Recovered	93.1	82.9	0.036
Defaulters	3.9	4.8	0.308
Internal transfers	0.8	0.8	0.934
Died	0.5	0.7	0.629
Non-responders	1.7	10.9	0.001

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Died	0.5	0.7	0.629
Non-responders	1.7	10.9	0.001
Relapse proportion (%)			
Follow up 2 months	13.1	15.2	0.778
Follow up 6 months	0.3	2.8	0.071

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…