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Innovations for Poverty Action

Chlorine Dispensers: Establishing Impact in Emergencies

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Chlorine Dispenser System: 3 components

1. Dispenser Hardware
2. Local Promoter
3. Bulk Chlorine Refills
Take-up by Treatment Arm
Initial Gates Research Grant Results

The graph depicts the percentage of households with chlorinated drinking water over time for different treatments. The treatments include Control, Treatment 1 (A, B, C), Treatment 2 (A, B), and Treat. 3A. The data is categorized by time periods: 3 weeks, 3-6 months, 18 months, and 30 months. The graph indicates a trend of increasing chlorinated drinking water percentages with time for all treatments, with the highest percentage observed in Treat. 3A over the 30-month period.
Take-up by Treatment Arm

- Control
- Treatment 1 (A, B, C)
- Treatment 2 (A, B)
- Treat. 3A

Y-axis: % of households with chlorinated drinking water
X-axis: Various treatment arms

Legend:
- 3 weeks:
  - Self-report
  - Positive test
- 3-6 months:
  - Self-report
  - Positive test
- 18 months:
  - Self-report
  - Positive test
- 30 months:
  - Self-report
  - Positive test

Red arrows indicate an increase in the percentage of households with chlorinated drinking water across different treatment arms and time periods.
Take-up by Treatment Arm
Take-up by Treatment Arm
Take-up by Treatment Arm
Take-up by Treatment Arm
Take-up by Treatment Arm
Conclusions

- High uptake of free chlorine for HWTS
  - But demand sensitive to price

- Persuasive messages do not have long-term impact
  - Awareness is already high

- Free point-of-source treatment has promise
  - If you supply for free, people use -> cheaper to supply at source than home
  - Supported by Gates / USAID for scale-up
  - Promise in emergencies
Dispensers in Emergencies

- “Bucket Chlorination”
  - Common intervention
  - Stationing worker at source
  - Putting chlorine into bucket
  - Problems with accuracy / FCR

- Could Dispensers replace BC?

- Funded by BMGF
  - October 2011
  - To IPA, with 4 sub-contracts to INGOs
1. Continue and evaluate existing Dispenser program in Haiti

2. Work in collaboration with 4 emergency response organizations to pre-position Dispensers, manuals, and training materials

3. Implement Dispensers in four TBD emergencies with high DDR

4. Evaluate uptake & effective use within 3-12 weeks

5. Develop and distribute implementation guidelines for Dispensers in emergencies

6. Evaluate sustained use of Dispensers in the post-emergency context
Methodology

- Dispenser evaluation
- Household surveys (300)
- Water quality testing
- Focus group discussions
- Key informant interviews

- 7 times
  - 1 existing, 4 new, 2 sustained
Survey prep
Installed Dispensers in most-affected villages

- Remote, rural, difficult to access
- Water committee trainings (2)
- Local dilution of HTH for chlorine supply

No \([\text{Cl}^-]\) correct in Dispensers

Training not sufficient

Sources were “most bad”
Variation by community

- # HH report using Dispenser
- % HH report using source with Dispenser
## Survey results - FCR by treatment

<table>
<thead>
<tr>
<th></th>
<th>Reported treated</th>
<th>Confirmed (&gt;0.2 mg/L)</th>
</tr>
</thead>
</table>
| **Aquatabs**  
n=298 | 106  
35.6% | 59 (55.7%) 
19.8% |
| **Dispensers**  
n=298 | 35  
11.7% | 27 (77.1%) 
9.1% |
Microbiology

Dispenser pairs (confirmed FCR >=0.2 mg/L)

- Treated
- Untreated

Households

<table>
<thead>
<tr>
<th>E. coli risk categories</th>
<th>&lt;1</th>
<th>1-10</th>
<th>11-100</th>
<th>&gt;100</th>
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<tbody>
<tr>
<td>Treated</td>
<td>13</td>
<td>1</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Untreated</td>
<td>7</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

3.8% “effective use”
Selection criteria from initiation meeting

1. Homogenized, point sources
2. Population density relative to number of sources (30 HH’s/source)
3. Source density (50 sources in area)
4. Minimum number of affected population (1500 HH’s)
5. Dispensers are most appropriate option
6. Minimum chlorine acceptability
7. Access for evaluators
8. Developing country
9. Diarrheal disease risk
## Results summary – to date

<table>
<thead>
<tr>
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<th>Confirmed Use (FCR)</th>
<th>Effective Use (micro improve)</th>
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<tr>
<td><strong>DRC</strong></td>
<td>A: 52%</td>
<td>A: 35%</td>
<td>A: 19%</td>
</tr>
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<td><strong>Sierra Leone</strong></td>
<td>A: 17%</td>
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</tr>
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<td>A: 54%</td>
</tr>
<tr>
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</tr>
<tr>
<td></td>
<td>S: (100%) IP</td>
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</tr>
<tr>
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<td>A: 54%</td>
</tr>
<tr>
<td></td>
<td>S: 98.5%</td>
<td>S: 87%</td>
<td>S: 72%</td>
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<td><strong>Not installed</strong></td>
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Preliminary Conclusions & Next steps

- What we determined in the initiation meeting
  - Was correct

- Dispensers can be effective in emergencies
  - But not always
  - Context matters, Implementation matters
  - Selection criteria needs to be assessed before installation
  - No “one size fits all” solutions

- Next steps
  - Completing sustained evaluations
  - Writing up results, final meeting, recommendation manual
Thank you to the respondents, enumerators, and the BMGF.

Thank you.
Questions?