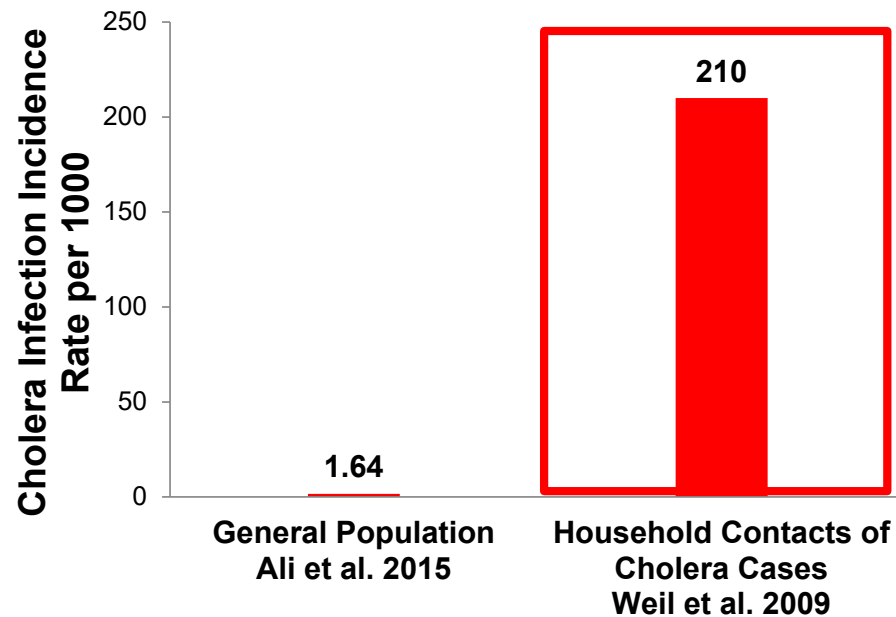


Evidence-Based WASH Interventions to Reduce Cholera in Bangladesh and the Democratic Republic of the Congo: CHoBI7 and PICHA7 Programs

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Associate Professor
Department of International Health
Johns Hopkins School of Public Health

Program Rationale

Household members of cholera patients are at a 100 times higher risk of developing a cholera infection than the general population



Cholera Hospital-Based Intervention for 7 days CHoBI7 WASH Program in Bangladesh

Promoter Delivery of CHoBI7 Water, Sanitation, and Hygiene (WASH) Pictorial Module



Health Facility Visit

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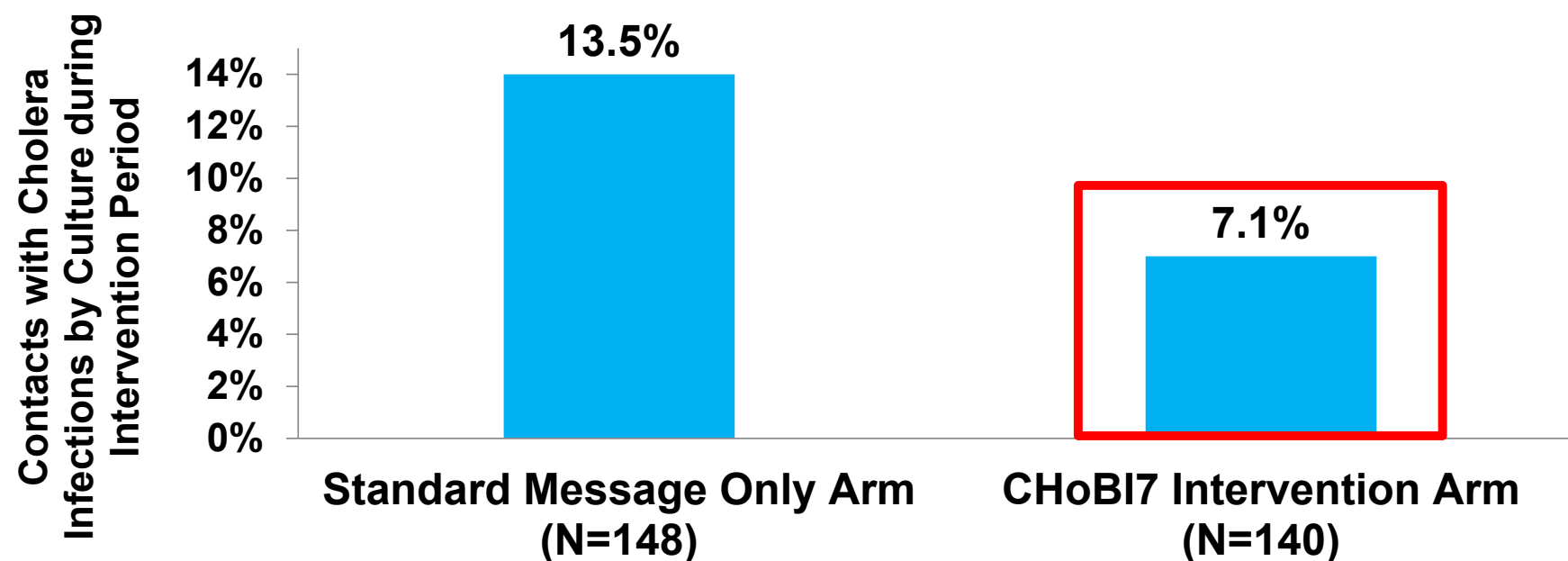


Home Visits

George et al. 2016 Emerging Infectious Diseases

Previous Randomized Controlled Trial 2013-2014: CHoBI7 Program Significantly Reduces Cholera

**47% Reduction in Overall Cholera Infections among Household Members in
CHoBI7 Intervention Arm**



George et al. 2016 Emerging Infectious Diseases

Investigating Scalable Approaches for Delivery of CHoBI7



CHoBI7 Mobile Health Program

Weekly Voice and Text Messages for 12 Months



Dr. Chobi



Aklima



Aklima's Husband

George et al. 2021 Clinical Infectious Diseases

Example Voice Message: Dr. Chobi



Hello. This is Dr. Chobi from the Hospital. How are you?

Have you been using the soapy water we gave you in the hospital?

Making more soapy water is easy: add six capfuls of detergent to a plastic water bottle and then add water.

Please tell my words to all family members.

I'll talk to you again. Take care!

Keep your family healthy and happy!

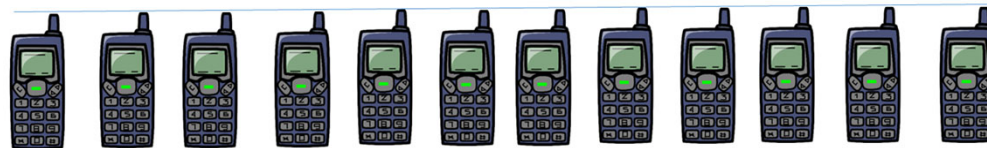
CHoBI7 Mobile Health Program Delivery

Health Facility Delivery of CHoBI7



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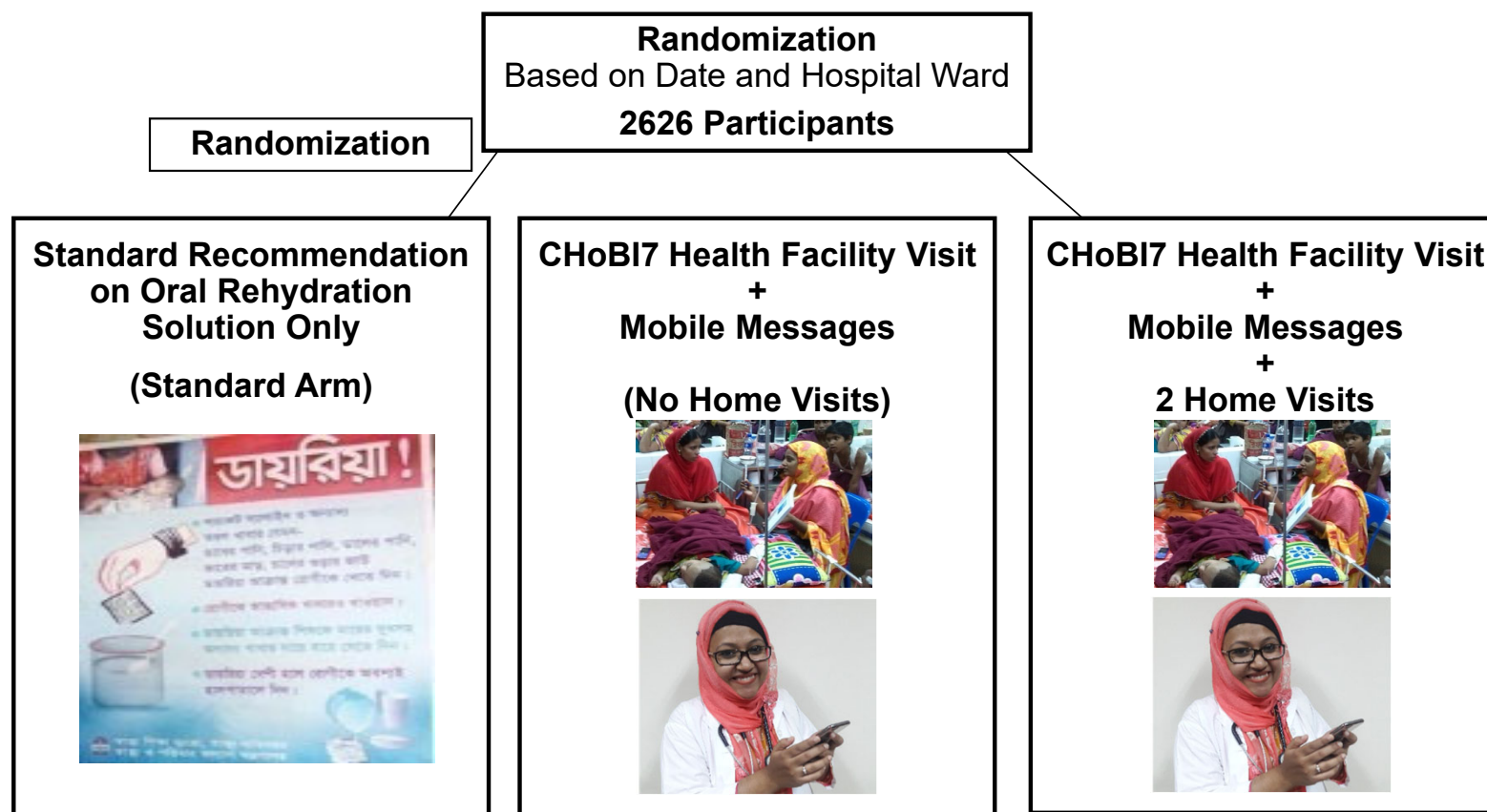
Weekly Voice and Text Messages for 12 Months



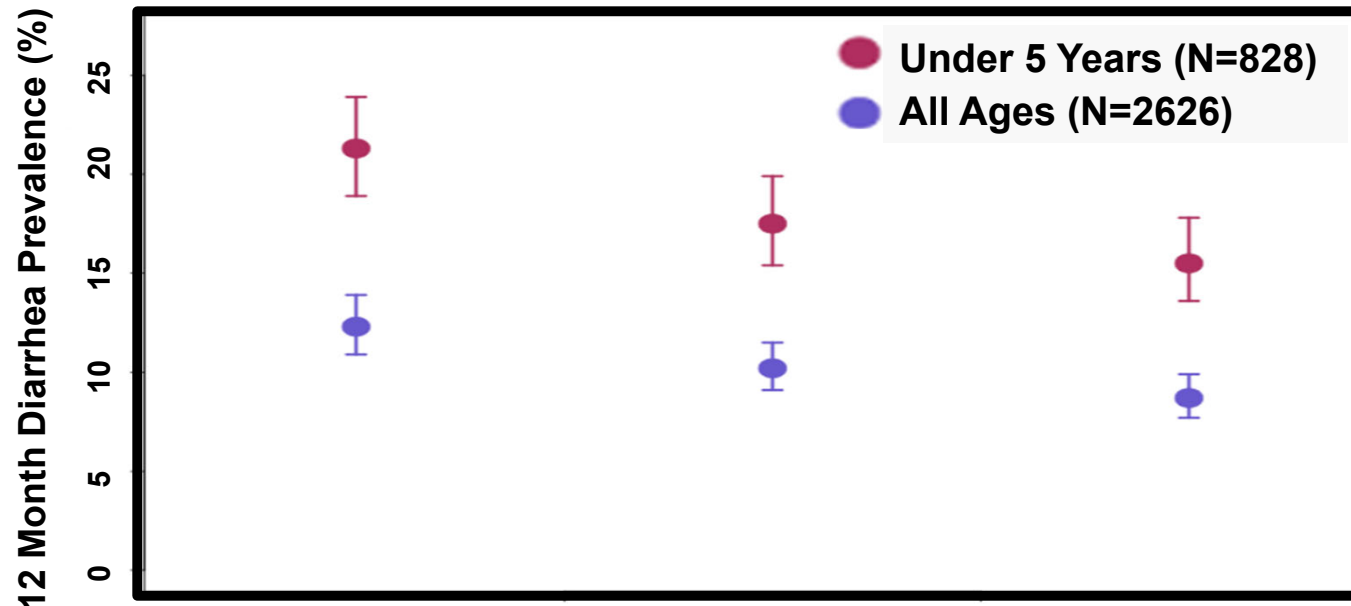
George et al. 2020 Clinical Infectious Diseases

Randomized Controlled Trial of CHoBI7 mHealth Program 2016 - 2019

Study Site: Mugda General Hospital and icddr,b Hospital in Dhaka, Bangladesh



Randomized Controlled Trial 2016-2019: CHoBI7 mHealth Program Significantly Reduces Diarrhea Prevalence



<i>Prevalence Ratio (95% CI)</i>	Standard Arm	mHealth with no Home Visits Arm	mHealth with 2 Home Visits Arm
Under 5 years	ref	0.82 (0.69, 0.97)	0.73 (0.61, 0.87)
All Ages	ref	0.82 (0.69, 0.97)	0.71 (0.60, 0.84)

George et al. 2020 Clinical Infectious Diseases

Scaling the CHoBI7 Program in Community Clinics, District and Sub-District Health Complexes, General Hospitals



Ministry of Health and Family Welfare
(MOHFW)



General Hospitals



Community Clinics



District Health Complexes

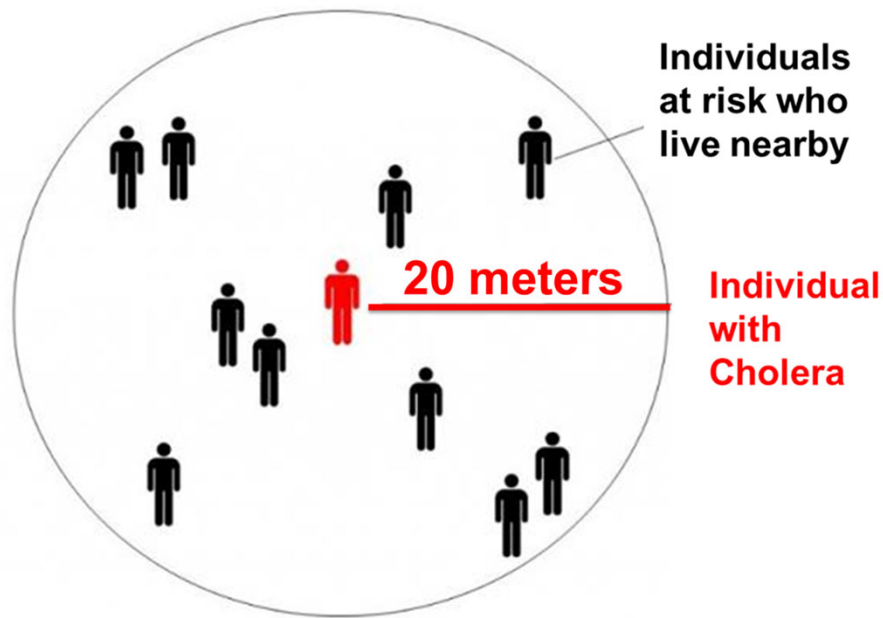


Sub-District Health Complexes



Current Work: CHoBI7 Cholera Rapid Response Program

Individuals living within 20 meters of a cholera patient are at >16 times higher risk of developing a cholera infection than the general population



CHoBI7 Cholera Rapid Response Program



Ali et al. 2016. PLoS medicine

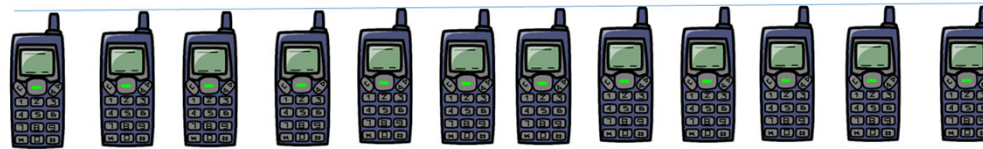
CHoBI7 Cholera Rapid Response Program Delivery

Ring Delivery of CHoBI7 in Cholera Hotspots



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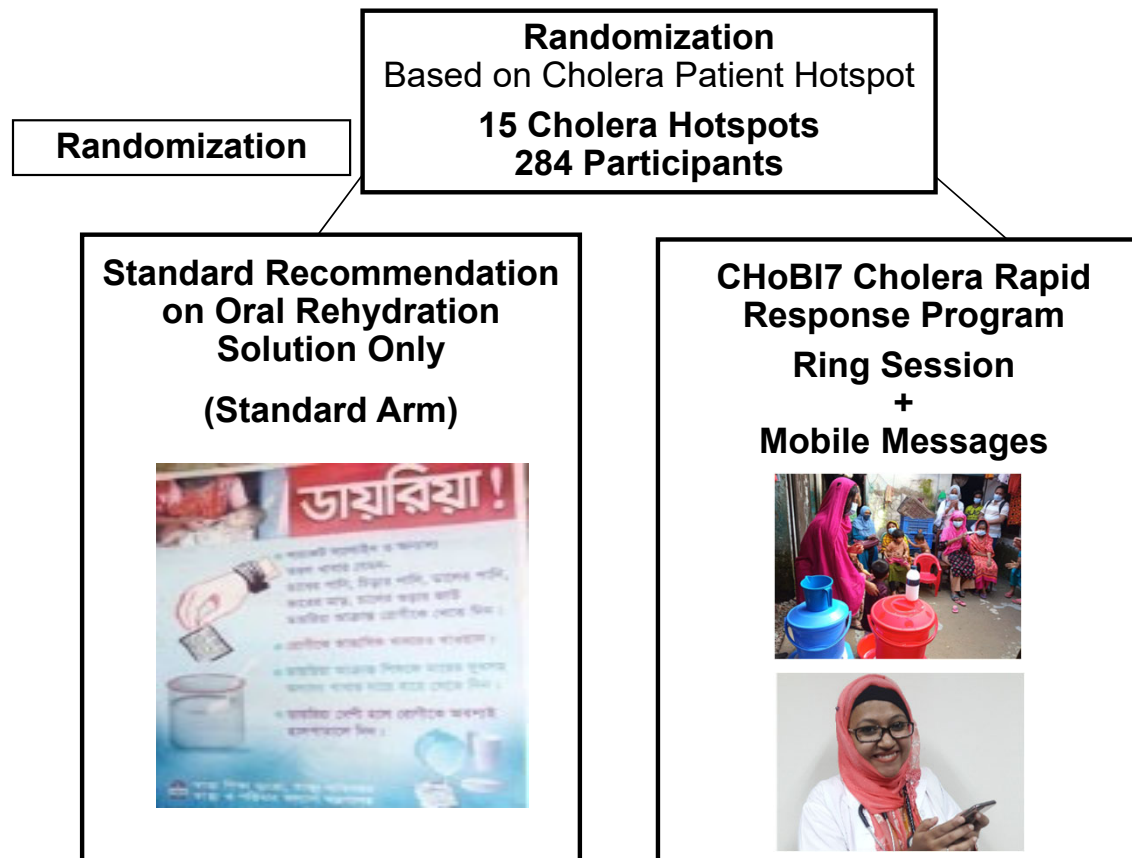
Weekly Voice and Text Messages for 3 Months



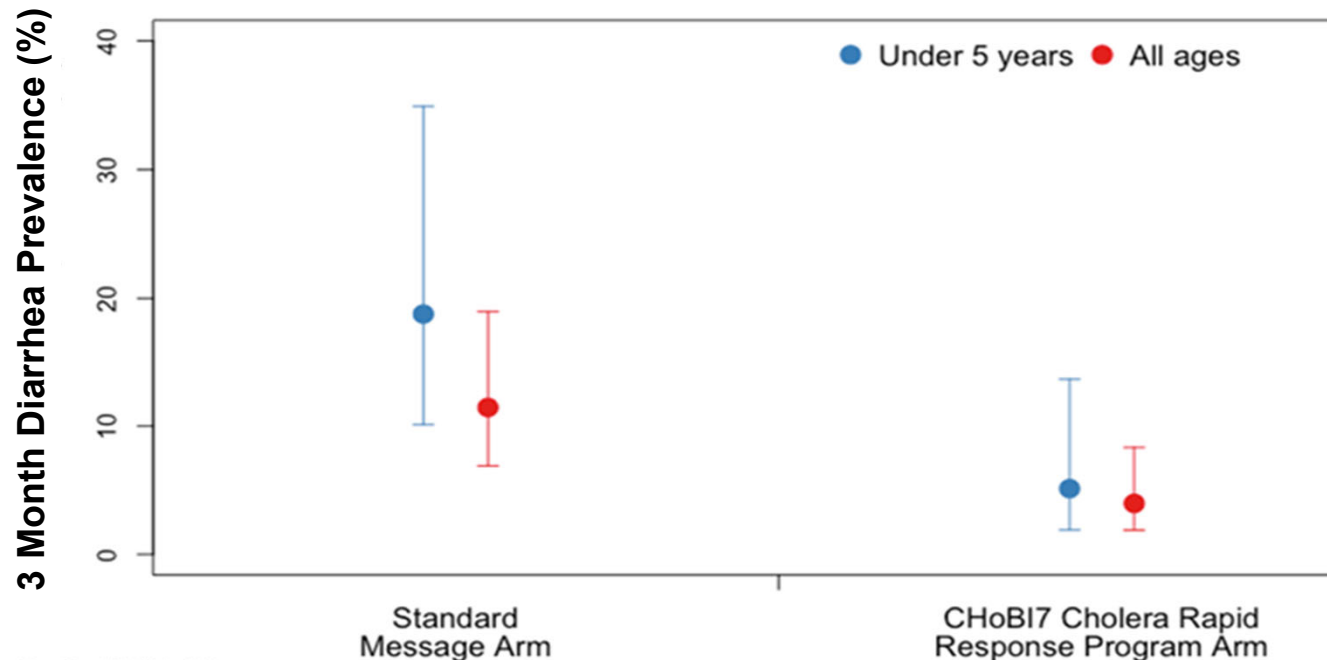
George et al. 2022 International Journal of Environmental Research and Public Health

Randomized Controlled Trial of CHoBI7 Cholera Rapid Response Program 2021

Study Site: Slum Areas of Dhaka, Bangladesh



Randomized Controlled Trial 2021: CHoBI7 Cholera Rapid Response Program Significantly Reduces Diarrhea Prevalence

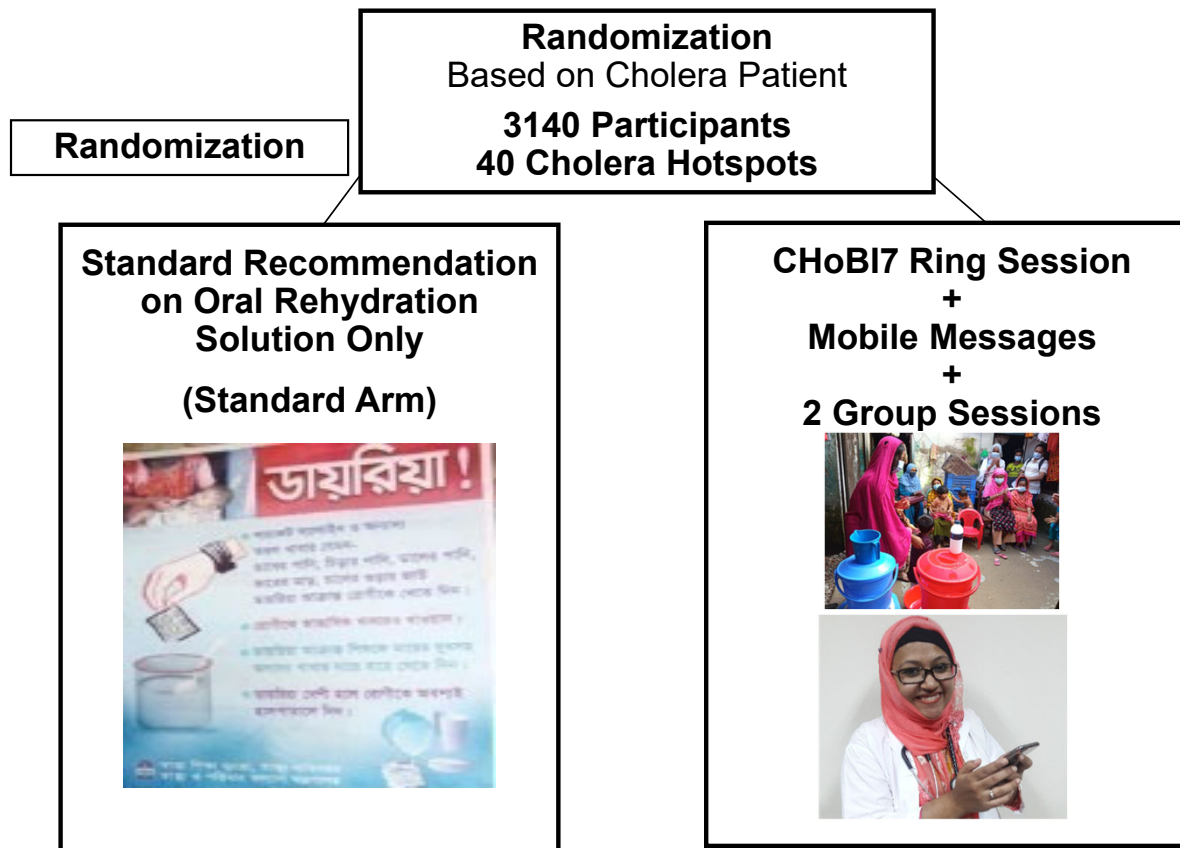


Prevalence Ratio (95% CI) (N=222)

Under 5 years	ref	0.27 (0.09, 0.87)
All Ages	ref	0.35 (0.14, 0.85)

Randomized Controlled Trial of CHoBI7 Cholera Rapid Response Program 2023-2025

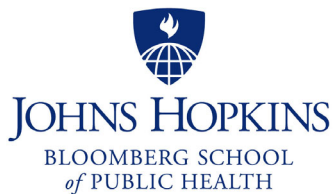
Study Site: Slum Areas of Dhaka, Bangladesh



CHoBI7 Program Findings

- ☐ **CHoBI7 program significantly reduced cholera among cholera patient households.**
- ☐ **CHoBI7 mHealth program reduced diarrhea among diarrhea patients households even with no home visits.**
- ☐ **CHoBI7 Cholera Rapid Response Program in cholera hotspots in urban Bangladesh significantly reduced diarrhea.**

Preventative Intervention for Cholera for 7 Days (PICH7) Democratic Republic of the Congo



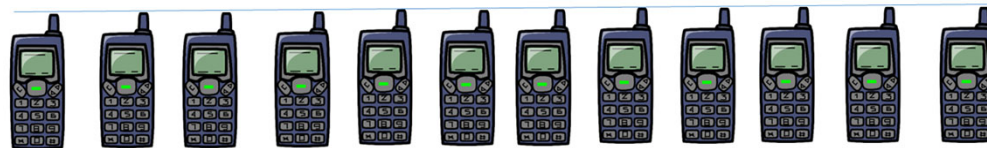
PICHA7 Mobile Health Program Delivery

Health Facility and Household Delivery of PICH A7



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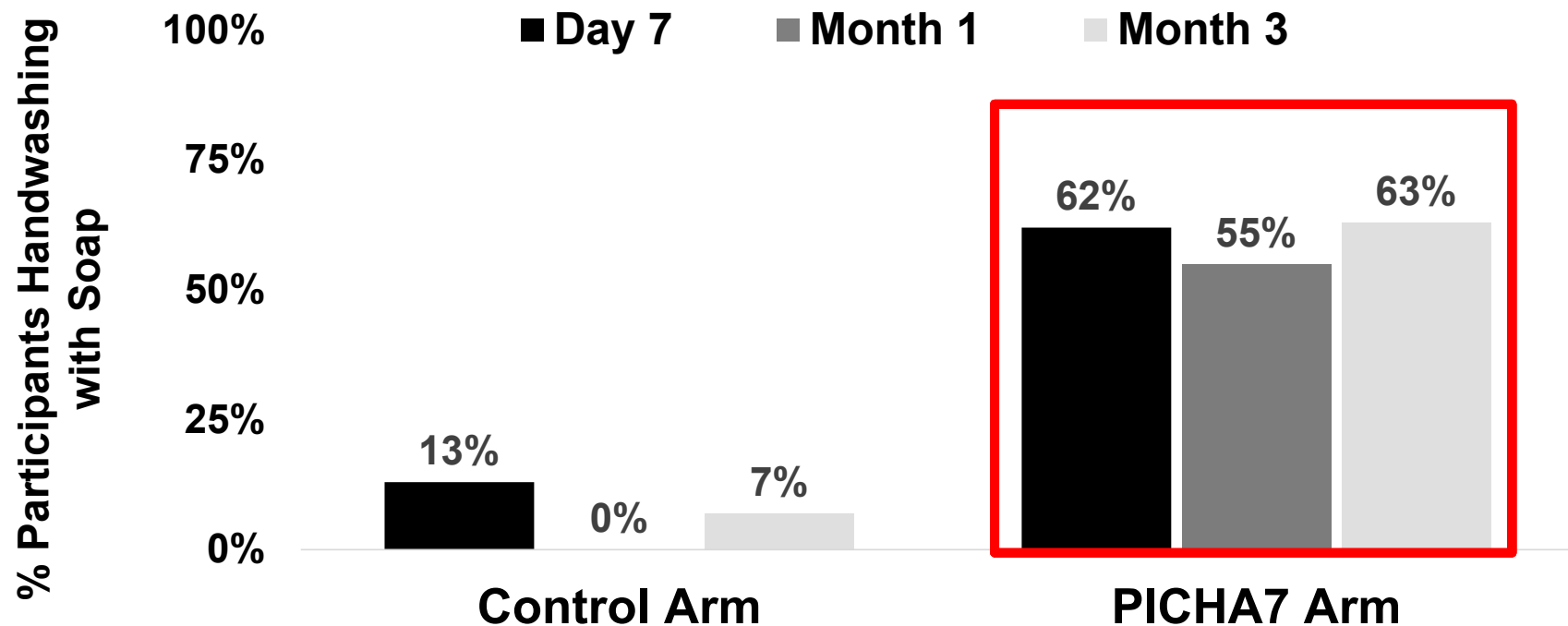
Weekly Voice and Text Messages for 3 Months



Bisimwa et al. 2022 International Journal of Environmental Research and Public Health

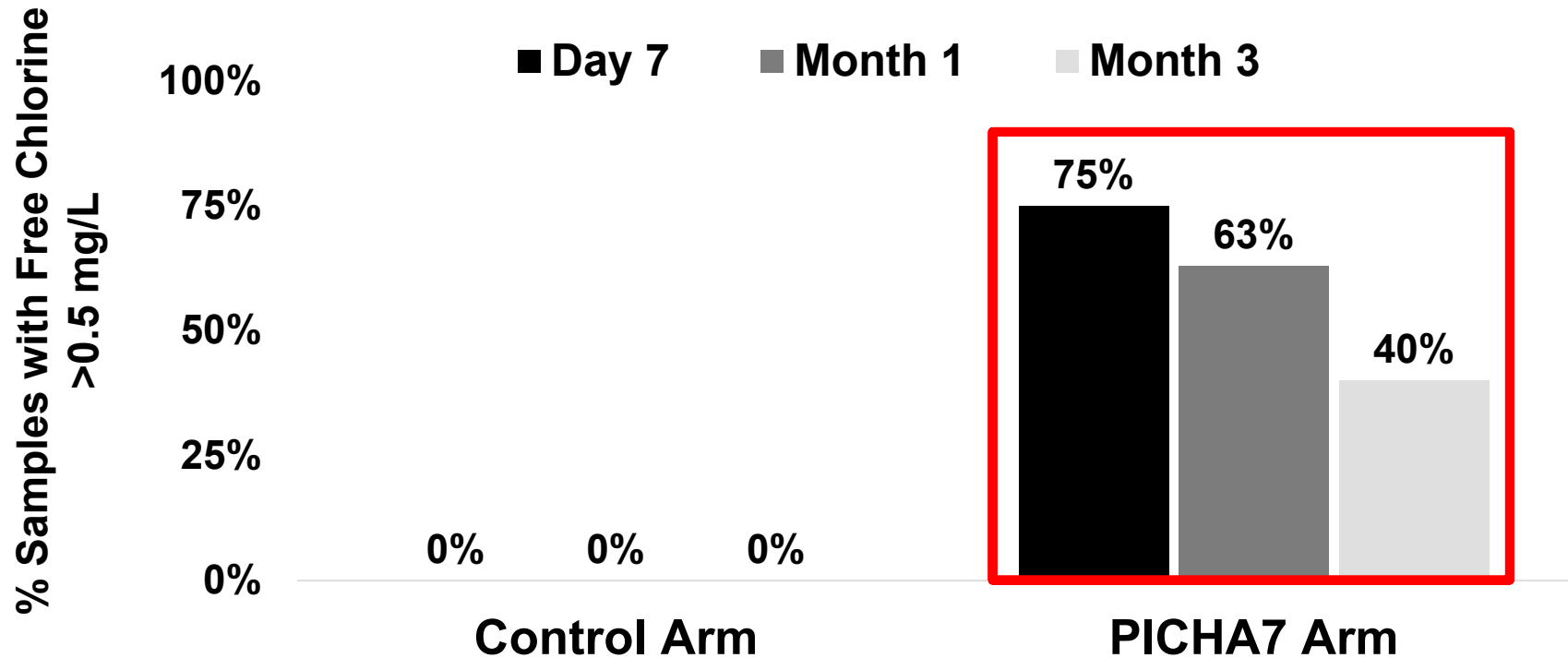
PICHA7 Significantly Increased Handwashing with Soap

Pilot Finding: Handwashing with Soap at Food and Stool Events
5-hour Household Structured Observations (N= 507 participants)



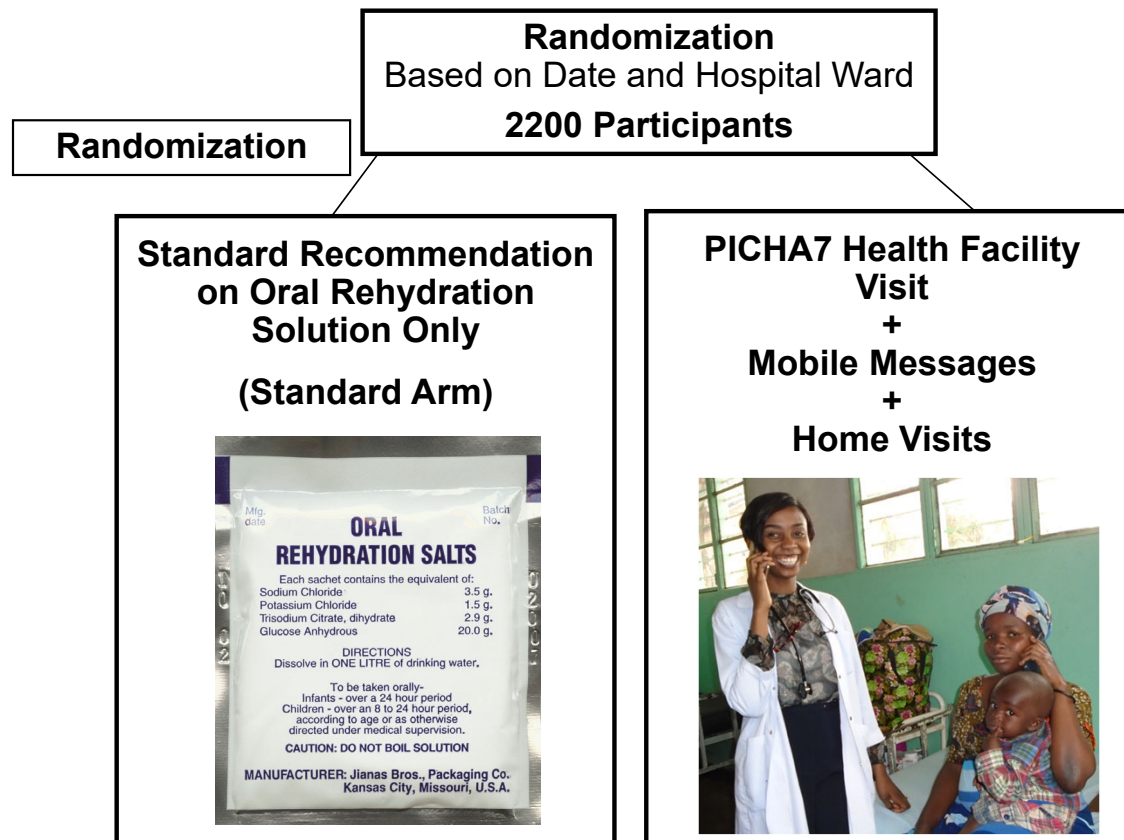
PICHA7 Significantly Increased Chlorination of Water

Pilot Finding: Stored Water with Free Chlorine >0.5mg/L
Unannounced spot checks (N= 164 households)



Randomized Controlled Trial of PICHA7 mHealth Program 2021-2023

Study Site: Health Facilities in Bukavu, Democratic Republic of the Congo



PICHA7 Enteric Microbiology Laboratory

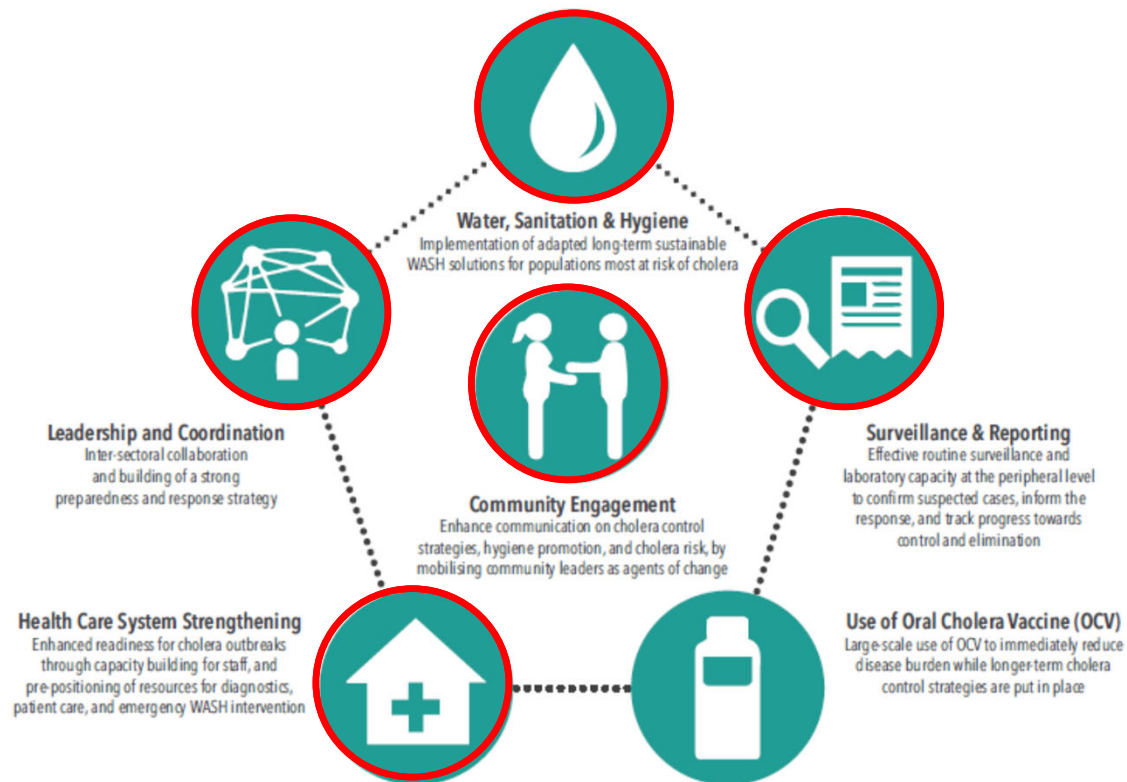


PICHA7 Program Findings

- ☐ High user acceptability was observed with delivery of the PICH A7 program.
- ☐ PICH A7 program pilot significantly increased handwashing with soap and water treatment behaviors.
- ☐ We are currently conducting an RCT of the PICH A7 program among 2200 participants to investigate the effectiveness of the program in reducing cholera.

Impact of CHoBI7 and PICHA7 Programs on Policy and Practice

ENDING CHOLERA- A GLOBAL ROADMAP TO 2030



Ministry of Health and Family Welfare
(MOHFW)