

Schools as a venue for WASH promotion

CDC's experience

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Background

- ❑ **Schools may be an excellent venue for WASH promotion**
 - Large, concentrated, receptive audience
 - Teachers provide continuity
 - Could reinforce program messages repeatedly within and across years
 - Could train new staff
 - Peer pressure may more rapidly facilitate social norms
- ❑ **Limited data on impacts within and outside of schools**
- ❑ **Limited information about best practices for school-based WASH behavior change programming**

CDC's school WASH research activities

- 1. Health impacts among students**
- 2. Diffusion of impacts outside of schools**
- 3. Sustainability of interventions and impacts**



1. Impact of at-scale handwashing promotion on student health



Bowen A, et al. 2007. Am J Trop Med Hyg 76(6):1166-1173.

The handwashing promotion program

□ Soap manufacturer has promoted handwashing in Chinese elementary schools since 1999

- Reached >20 million children

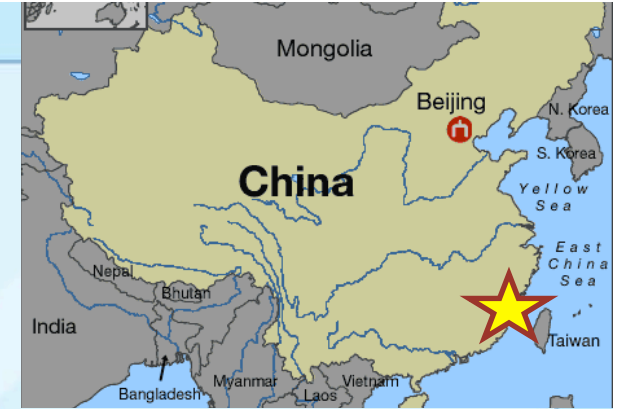
□ Program components

- Company handwashing trainer
- Teacher
 - 1 h hygiene instruction
 - Educational posters
 - Hygiene competition posters
 - Handwashing DVD
- Student
 - 1 h hygiene instruction by own teacher
 - Take-home packet
 - Samples of soap and toothpaste
 - Hygiene-related game
 - Booklet for parents





Study design



- ❑ Set in public elementary schools in Fujian Province, China

- ❑ Randomized schools to 3 groups

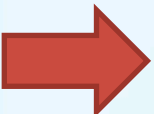
Control	30 schools
Standard intervention	28 schools
Expanded intervention (handwashing promotion, soap for school, peer hygiene champion in each class)	29 schools

- ❑ Enrolled 1st grade students
- ❑ Collected absence data for 5 months

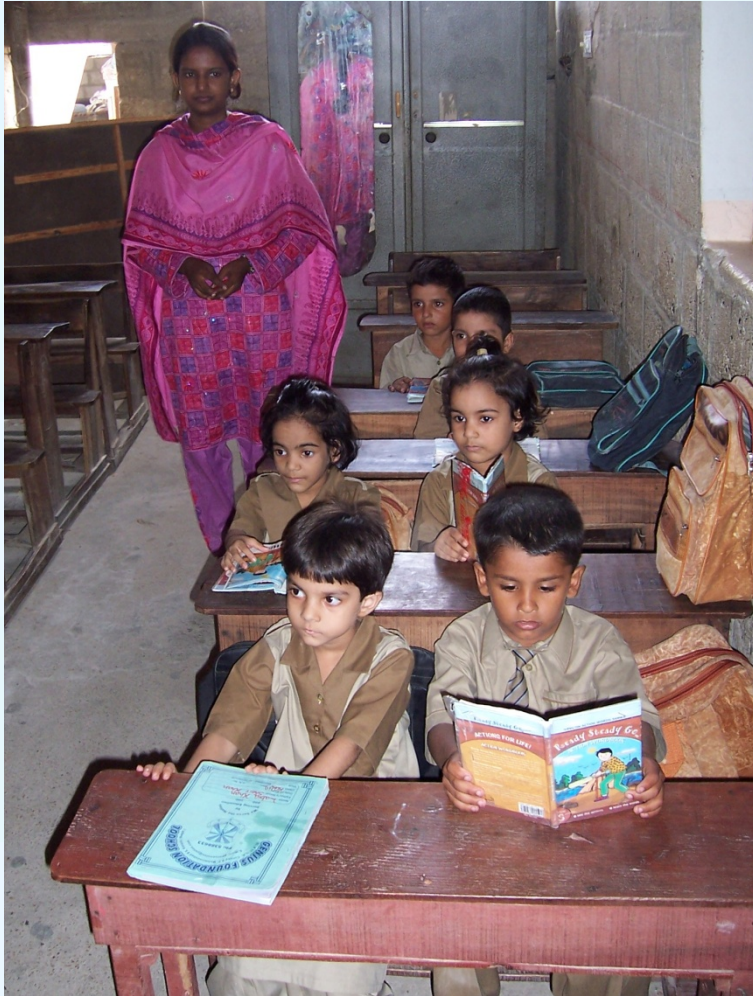
Results

Group	Median absences / 100 student-weeks	p
Control	2.74	--
Standard intervention	1.87	0.14
Expanded intervention	1.19	0.01

 Students in the **standard** intervention group tended to be absent less than control children

 Students in the **expanded** intervention group were absent $< 1/2$ as often as students in the control group

2. Diffusion of impacts to students' households

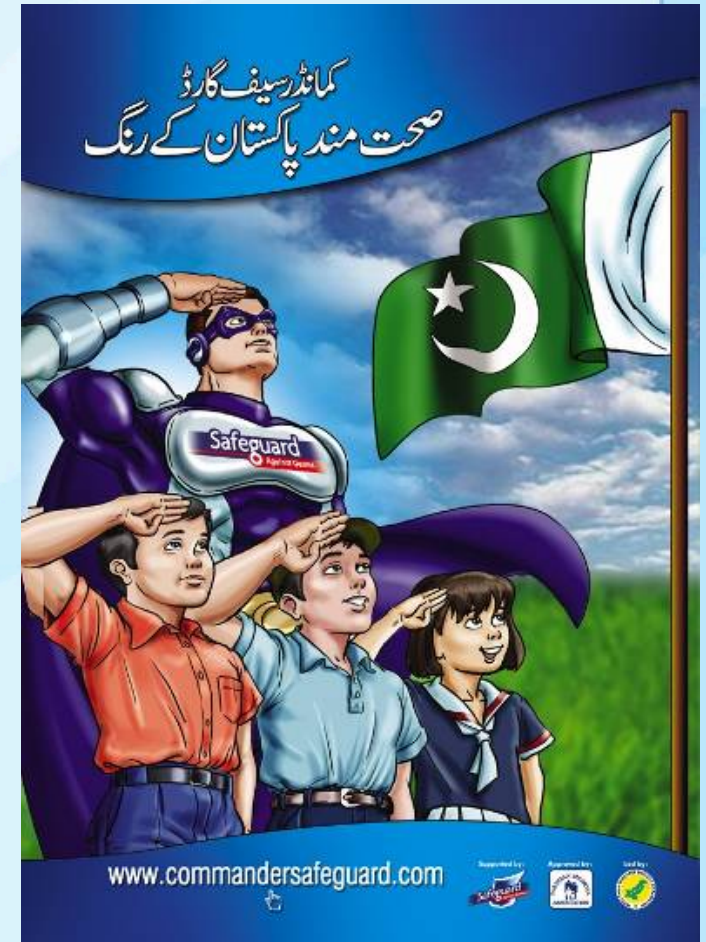


Bowen A, et al. American Academy of Pediatrics Annual Conference and Exposition, Oct 1 - 5, 2010. Abstract 11322.

Note: General summaries of results are presented in this version of the presentation because the data are not yet published.

The commercial handwashing program

- ❑ Reached > 7 million students in grades 1 – 6 since 2004
- ❑ Consists of
 - 2 visits to school during 1 month
 - Hygiene education
 - Handwashing demonstration
 - Commander Safeguard video
 - Student activity book and stickers
 - Handwashing diaries for home use
- ❑ Does not include handwashing supplies



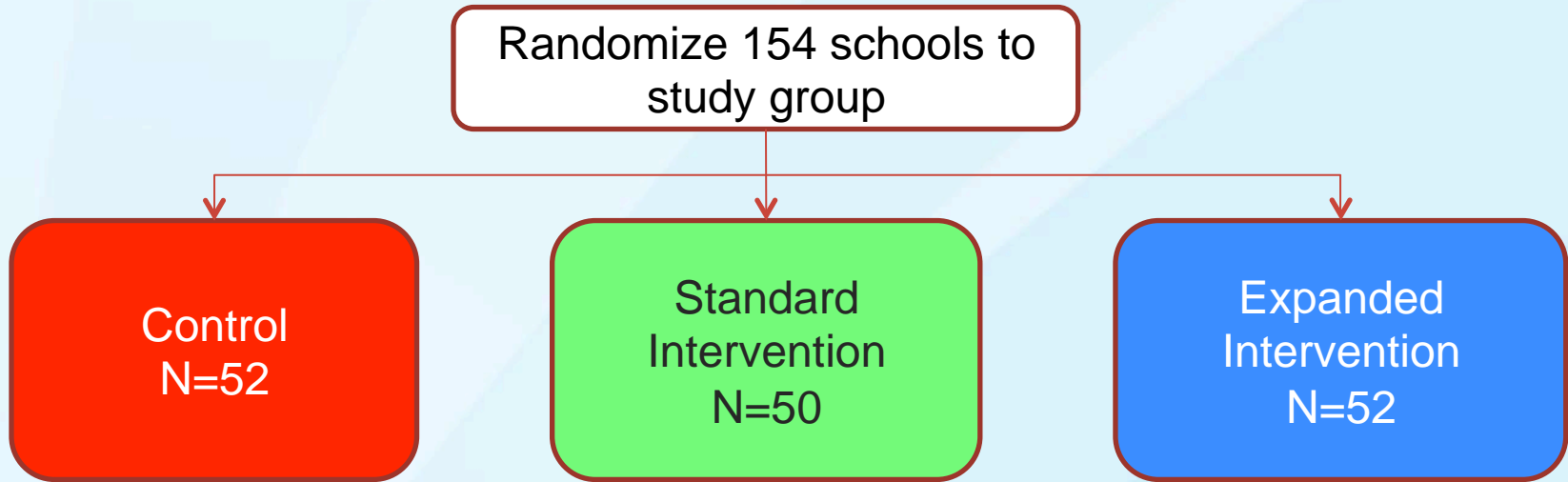
Methods

Randomize 154 schools to
study group

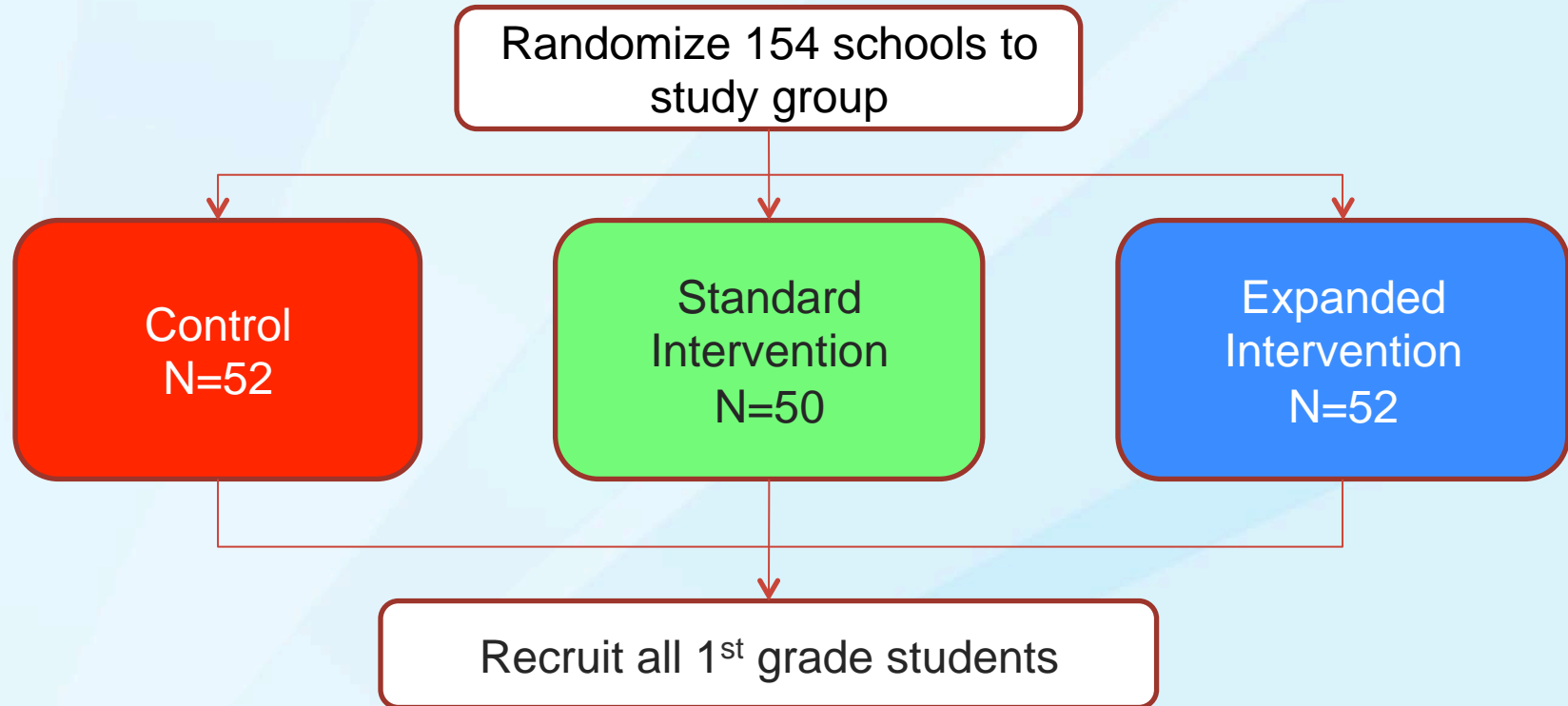
Control
N=52

Standard
Intervention
N=50

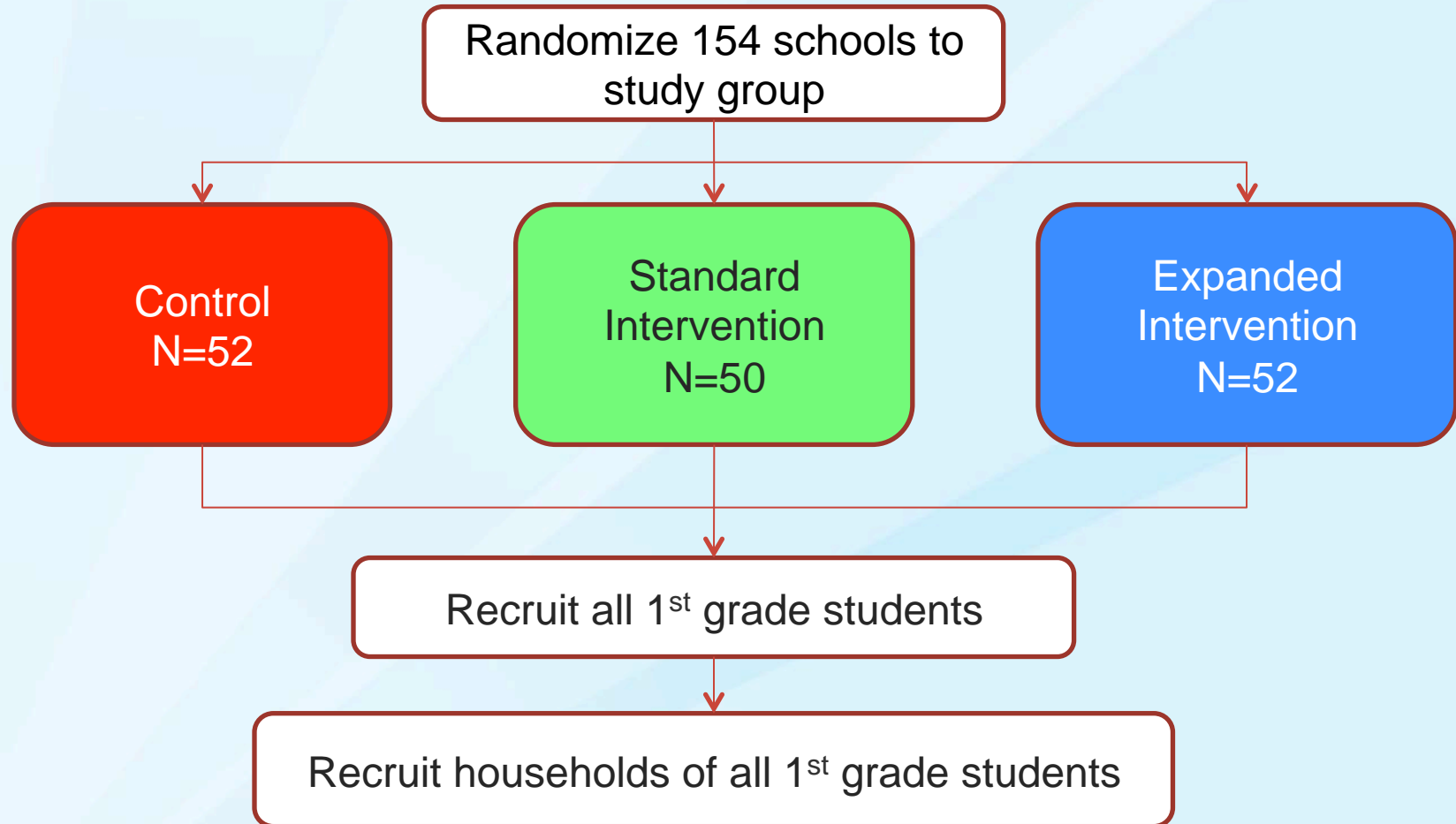
Expanded
Intervention
N=52



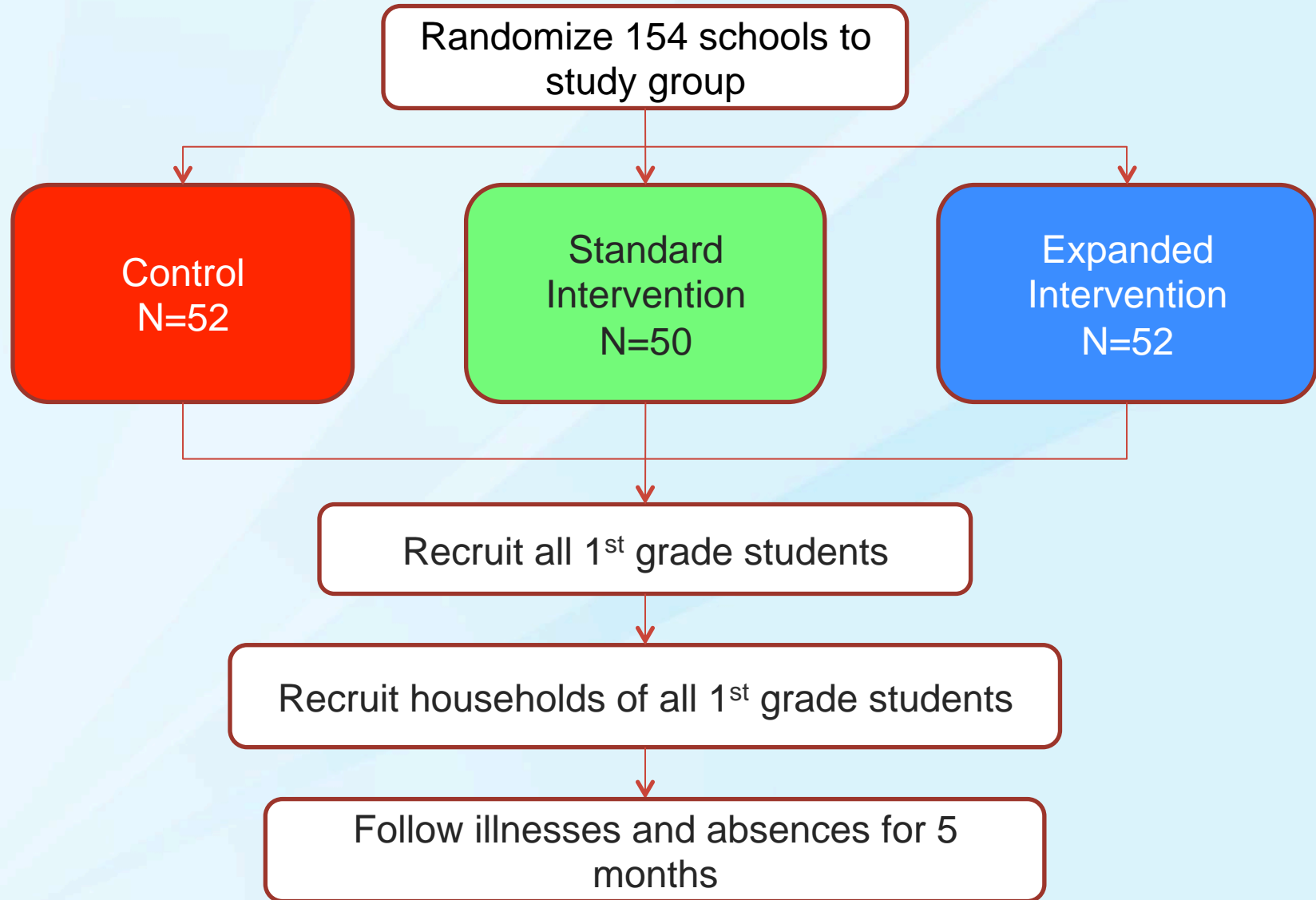
Methods



Methods



Methods



Student absenteeism

- Compared to the control group,
 - Standard intervention group
 - Significantly lower rate of absence due to fever
 - Expanded intervention group
 - Significantly lower rate of absence due to
 - Fever
 - Upper respiratory infection
 - Diarrhea
- No difference in rates of absence due to non-infectious illnesses

Parental missed work due to illness

Parents in expanded intervention group missed about half as much work due to illness as control parents.

Household healthcare visits

Households of children in the **standard** intervention group tended to require fewer health care visits than control households.

Households of children in the **expanded** intervention group required ~25% fewer health care visits than control households.

3. Sustainability of school WASH programs



Blanton E, et al. 2010. Am J Trop Med Hyg 82(4):664 – 671.

Note: General summaries of the 3-year evaluation results are presented in this version of the presentation because the data are not published.

The intervention

❑ Provided schools with WASH supplies

- Six 60 L buckets with taps and stands to use as handwashing and drinking water stations
- 3-month supply of
 - Flocculent-disinfectant product
 - Sodium hypochlorite solution
 - Soap

❑ Trained school staff

- 2 teachers/school trained in water treatment and handwashing technique

❑ Encouraged formation of Safe Water Clubs

- Students manage water and hygiene facilities and participate in related projects



Methods

- ❑ Selected 17 schools
- ❑ Randomly selected 666 students from grades 4 – 8 and their households
- ❑ Interviewed participants at baseline and 1 year later
- ❑ Assessed WASH infrastructure and practices at schools 3 years later



Student knowledge

Correctly demonstrate:	Baseline N=666 students		1-year follow-up N=413 students	
	n	%	n	%
Use of floc-disinfectant	9	1	225	54
Use of sodium hypochlorite	101	15	93	23
Handwashing technique	149	22	204	47

Household knowledge

	Baseline N= 662 households		1-year follow-up N= 536 households	
	n	%	n	%
Correctly demonstrate				
Use of floc-disinfectant	53	8	293	55
Use of sodium hypochlorite	235	35	306	57
Handwashing technique	167	25	254	47
Confirmed water treatment	43	7	96	18

Sustainability of program at schools after 3 years

- ❑ **Of the 17 schools,**
 - Most were still using water stations
 - Just under half had residual chlorine in all water stations
 - Most schools reported purchasing water treatment products after initial supply depleted
 - Primary barriers: cost, non-functional stations, time
 - Very few had soap

- ❑ **Most teachers reported teaching students about safe water and handwashing**

Lessons learned

Measured impacts of school WASH

□ Student impacts

- Enhanced WASH knowledge
- Decreased absenteeism
 - Less absence due to hand-transmissible diseases

□ Diffusion outside of school

- Enhanced WASH knowledge among household members
- Less illness, parental work absenteeism, and health care visits among households

Implementation issues

□ Feasibility

- Schools are seemingly ideal venue for scale-up
 - Cost-effectiveness?
 - How to improve uptake?
- Commercial programs appear economically feasible at scale and have broad geographic reach
 - Inclusion of most rural areas and poorest populations?
 - Procurement of soap at schools?
 - Staff turnover?
- Smaller donor-sponsored programs can reach more rural areas
 - How to scale up?

□ Sustainability

- Improvements in WASH knowledge and confirmed water treatment measured among students and households after 1 year
- Documented use and purchase of WASH supplies at schools after 3 years

Looking ahead...

□ **Good information is power**

- Rigorous research design and analysis make results more interpretable and persuasive

- Many large questions remain
 - Impacts of sanitation improvements in schools
 - Impacts of school WASH on teacher health and health of larger community
 - Best practices in school-based WASH behavior change
 - Cost-effectiveness of school WASH promotion
 - Role of school WASH policies, and how to effect policy change
 - How to achieve sustainable scale-up of effective programs

Thank you!

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More information about these studies can be found here:

- **Bowen A, et al. 2007. Am J Trop Med Hyg 76(6):1166-1173.**
- **Bowen A, et al. 2010. American Academy of Pediatrics National Conference and Exposition. San Francisco, CA, Oct 1 – 5, 2010. Abstract #11322.**
- **Blanton ,E et al. 2010. Am J Trop Med Hyg 82(4):664 – 671.**

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