WEB FIG. 1 *Risk of bias graph: review authors' judgements about each risk of bias item presented as percentages across all included studies.*

WEB FIG. 2 *Risk of bias summary: review authors' judgements about each risk of bias item for each included study.*

WEB APPENDIX 1 ASSUMPTIONS AND CALCULATIONS FOR IMPUTATION/INTERPRETATION OF DATA FROM STUDIES INCLUDED IN THE SYSTEMATIC REVIEW

<u>Slayton 2016</u>

1. The total number of participants is not provided in the published paper. The number is assumed from the total number of households and the median number of two children per household.
2. The number of episodes of infection are the reported episodes of illness in the 'past' 48 hours during biweekly visits to the households.
3. The denominator of person weeks calculated by dividing the number of biweekly visits by half.

<u>Shafique 2016</u>

1. The data from 'Hand Sanitiser Only' and 'Hand Sanitiser and Micronutrient' groups combined as intervention and Control, and 'Micronutrient Only' groups combined as control.
2. The episodes of cough were diagnosed if the child reported to have any sort of cough or difficulty breathing. An upper respiratory tract infection was diagnosed if the mother reported symptoms of a stuffy or runny nose in her child. Both the episodes are presented separately, and combined under the section 'ARI'.

<u>Pickering 2015</u>

1. The infection episodes are mean proportions expressed by respondents in a 2-week recall period.
2. Respiratory infections were described under three headings: congestion, cough and difficulty breathing. Here cough is included assuming it would be a common symptom for upper and lower respiratory infections.

<u>Patil 2014</u>

The confidence intervals for the change in means is given. The SD is calculated with the assumption that they are the same for both the groups as calculated for <u>Clasen 2014</u>.

<u>Clasen 2014</u>

1. The individual SDs for weight-for-age and length-for-age Z-scores for the control and intervention groups was not available from the intervention data. However, the effect size (difference in mean) and its 95% CI was available. The SD for the two groups was calculated from 95% CI or SE as per standard statistical recommendations.
2. For Soil Transmitted Helmenthiasis, the mean prevalence of the entire population is given. The prevalence was assumed to be the same for children and numbers calculated from there.

<u>Pickering 2013</u>

The number of school absence was calculated from the percentages given. Only one week data was given and this is represented as such in the calculations.

<u>Freeman 2013a</u>

1. A total of 1113 students were assessed at follow up. The split numbers of intervention and control groups were not provided. However, the median populations at the time of second follow up were given as 302 for intervention and 275 for control group. The total population was split in the same proportion.

For intervention, n = (302/577)*1113=583
For control, n = 530

2. Only the percentage prevalence of helminth infection was mentioned. The individual numbers were calculated from percentages.
3. The same procedure was followed for school absence
4. SE converted to SD. Pupil reported absence used for quantitative analyses

<u>Peletz 2012</u>

For weight-for-age Z scores, the mean scores at the end and P value were mentioned.
Mean intervention=-1.21; Mean control = -1.24; *P*=0.92
n for intervention=61; n for control =60
From p to t: Degree of freedom 61+60-2 =119
t=2.358 (from table)
SE=MD/t = -1.21+1.24/2.358 = 0.03/2.358 = 0.0127
SD = 0.0127/0.178 = 0.071

<u>Bowen 2012</u>

SD derived from 95% CI using SD=sqrtn(UL-LL)

<u>Rosen 2006</u>

1. Absenteeism was analyzed in terms of the percentage of days the child was absent; number of days calculated from percentage and n.
2. There were a total of 66 days of study period. Person-weeks of exposure calculated from *n* and this figure.

<u>Crump 2005</u>

This study provided the number of deaths in children less than 5 years of age but not the total number of children. Based on the inclusion criteria, the total number of children less than 2 years is provided. We have this number as the denominator while analyzing the mortality data assuming that the proportion of children between 2-5 years would be the same in the intervention and control groups.

<u>Emerson 2004</u>

The number of children less than 9 years and number with trachoma calculated from percentage figures.

WEB APPENDIX 2 DETAILS OF DATABASE SEARCH AND OUTPUT

Database	Date	Search Strategy	Number of references
Medline	August 26, 2016	Water (Mesh Terms) OR Drinking Water (Mesh Terms)OR Water Quality (Mesh Terms) OR Water Purification (Mesh Terms) OR Water Supply (Mesh Terms) OR Sanitation (Mesh Terms) OR Environmental Health (Mesh Terms) OR Sanitary Engineering (Mesh Terms) OR Waste Disposal (Mesh Terms) OR Refuse Disposal (Mesh Terms) OR Drainage, Sanitary (Mesh Terms) OR Waste Management (Mesh Terms) OR Toilet Facilities (Mesh Terms) OR Hygiene (Mesh Terms) OR Hygiene, hand (Mesh Terms) OR Hand disinfection (Mesh Terms) Filters: Clinical Trial	4888
Web of Science (including Biosis Previews)	August 26, 2016	TOPIC: ('Water or Drinking Water or Water Quality or Water Purification or Water Supply or Sanitation or Environmental Health or Sanitary Engineering or Waste Disposal or Refuse Disposal or Drainage, Sanitary or Waste Management or Toilet Facilities or Hygiene or Hygiene, hand or Hand disinfection) Refined by: TOPIC: (child) AND TOPIC: (Clinical Trial)	4035
Cochrane Controlled Trials Register	August 26, 2016	'Water OR Drinking Water OR Water Quality OR Water Purification OR Water Supply OR Sanitation OR Environmental Health OR Sanitary Engineering OR Waste Disposal OR Refuse Disposal OR Drainage, Sanitary OR Waste Management OR Toilet Facilities OR Hygiene OR Hygiene, hand OR Hand disinfection in Keywords in Trials'	7900
Embase	August 27, 2016	'Water or Drinking Water or Water Quality or Water Purification or Water Supply or Sanitation or Environmental Health or Sanitary Engineering or Waste Disposal or Refuse Disposal or Drainage, Sanitary or Waste Management or Toilet Facilities or Hygiene or Hygiene, hand or Hand disinfection).mp. (mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword) limit 1 to (human and clinical trial and child <unspecified age>)	1182
LILACS	August 28, 2016	Water OR Drinking Water OR Water Quality OR Water Purification OR Water Supply OR Sanitation OR Environmental Health OR Sanitary Engineering OR Waste Disposal OR Refuse Disposal OR Drainage, Sanitary OR Waste Management OR Toilet Facilities OR Hygiene OR Hygiene, hand OR Hand disinfection as Subject Descriptor	564
Popline	August 29, 2016	Searched under Popline Topic 'Population Health and Environment' the subtopics Sanitation and Water Quality and Hygiene. It included keywords:Sanitation or Water Supply or Hygiene or Health Education or Water Quality or Disease Prevention and Control or Delivery of Health Care or Education or Slums or Community Development or Waste Management	3608
Greysource (Open Grey)	August 29, 2016	Water OR Sanitation OR Hygiene discipline:(06E - Medicine)	2081

WEB APPENDIX 3 SUMMARY OF FINDINGS TABLES

A. Hygiene Compared to No Intervention for Children

Patient or population: Children; Settings: Low- and Middle-income Countries
Intervention: Hygiene ; Comparison: No intervention

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	No intervention	Hygiene				
Weight (kg)		The mean weight in the intervention groups was 0.2 higher (0.12 lower to 0.52 higher)		1272 (1 study)	⊕⊖⊖⊖ very low[1,2]	
Weight (Follow-up) (kg)		The mean weight (follow up) in the intervention groups was 0.2 lower (0.53 lower to 0.13 higher)		1390 (1 study)	⊕⊖⊖⊖ very low[1,2]	
Height (mm)		The mean height in the intervention groups was 10 higher (5.39 lower to 25.39 higher)		1272 (1 study)	⊕⊖⊖⊖ very low[1,2,3]	
Height (Follow-up) (mm)		The mean height (follow up) (mm) in the intervention groups was 10 lower (24.77 lower to 4.77 higher)		1390 (1 study)	⊕⊖⊖⊖ very low[1,2]	
Weight for age		The mean weight for age in the intervention groups was 0 higher (1.26 lower to 1.26 higher)		1272 (1 study)	⊕⊖⊖⊖ very low[1,2]	
WAZ (Follow-up)		The mean WAZ (follow-up) in the intervention groups was 0 standard deviations higher (0.09 lower to 0.1 higher)		1691 (2 studies)	⊕⊕⊖⊖ low[4,5]	SMD 0 (-0.09 to 0.1)
Height for age		The mean height for age in the intervention groups was 0 higher (0.66 lower to 0.66 higher)		1272 (1 study)	⊕⊖⊖⊖ very low[1,2]	
HAZ (Follow-up)		The mean HAZ (follow-up) in the intervention groups was 0 standard deviations higher (0.1 lower to 0.09 higher)		1691 (2 studies)	⊕⊕⊖⊖ low[4,5]	SMD 0 (-0.1 to 0.09)
Weight for Height		The mean weight for height in the intervention groups was 0 higher (0.99 lower to 0.99 higher)		1272 (1 study)	⊕⊖⊖⊖ very low[1,2]	
WFH (Follow up)		The mean WFH (follow up) in the intervention groups was 1 lower (1.95 to 0.05 lower)		1390 (1 study)	⊕⊖⊖⊖ very low[1,2]	
BMI Z score (Follow up)		The mean BMI Z score (follow up) in the intervention groups was 0.1 higher (0.2 lower to 0.4 higher)		301 (1 study)	⊕⊖⊖⊖ very low[2,6]	
Low WAZ	Study population		RR 0.85 (0.46 to 1.58)	168 (1 study)	⊕⊖⊖⊖ very low[7,8]	
	211 per 1000	179 per 1000 (97 to 334)				
	Moderate					
	211 per 1000	179 per 1000 (97 to 333)				
ARI (ep/person-week)	Study population		RR 0.76 (0.59 to 0.98)	894427 (6 studies)	⊕⊕⊕⊖ moderate[9]	
	48 per 1000	36 per 1000 (28 to 47)				
	Moderate					
	64 per 1000	49 per 1000 (38 to 63)				

Cough (episodes/ person-week)	Study population		RR 0.9 (0.83 to 0.97)	20980 (1 study)	⊕⊕⊕⊖ moderate[8]
	118 per 1000	106 per 1000 (98 to 114)			
	Moderate				
	118 per 1000	106 per 1000 (98 to 114)			
URI (episodes/ person-week)	Study population		RR 0.67 (0.35 to 1.28)	231113 (2 studies)	⊕⊕⊖⊖ low[8,10]
	170 per 1000	114 per 1000 (59 to 217)			
	Moderate				
	232 per 1000	155 per 1000 (81 to 297)			
Lab Confirmed Influenza	Study population		RR 0.5 (0.41 to 0.62)	44451 (1 study)	⊕⊖⊖⊖ very low[8]
	12 per 1000	6 per 1000 (5 to 7)			
	Moderate				
	12 per 1000	6 per 1000 (5 to 7)			
Fever	Study population		RR 0.87 (0.74 to 1.02)	25140 (2 studies)	⊕⊕⊕⊖ moderate[11]
	66 per 1000	57 per 1000 (49 to 67)			
	Moderate				
	67 per 1000	58 per 1000 (50 to 68)			
Skin Infection	Study population		RR 0.8 (0.51 to 1.25)	214293 (2 studies)	⊕⊕⊖⊖ low[8,12]
	10 per 1000	8 per 1000 (5 to 13)			
	Moderate				
	22 per 1000	18 per 1000 (11 to 28)			
Conjunctivitis (ep/person-week)	Study population		RR 0.49 (0.45 to 0.55)	533416 (1 study)	⊕⊕⊖⊖ low[8]
	4 per 1000	2 per 1000 (2 to 2)			
	Moderate				
	4 per 1000	2 per 1000 (2 to 2)			
Intestinal Parasite Infection	Study population		RR 0.65 (0.31 to 1.37)	1456 (2 studies)	⊕⊕⊕⊖ moderate[8]
	637 per 1000	414 per 1000 (197 to 872)			
	Moderate				
	528 per 1000	343 per 1000 (164 to 723)			
School Absence (d/person-week)	Study population		RR 0.78 (0.76 to 0.8)	587825 (4 studies)	⊕⊕⊕⊖ moderate[13]
	70 per 1000	55 per 1000 (53 to 56)			
	Moderate				
	93 per 1000	73 per 1000 (71 to 74)			
School absence (Mean)		The mean school absence (mean) in the intervention groups was 0 higher (0.01 lower to 0.01 higher)		10792 (1 study)	⊕⊖⊖⊖ very low[14,15]
Mortality	Study population		RR 0.65 (0.25 to 1.7)	5158 (2 studies)	⊕⊕⊖⊖ low[8]
	5 per 1000	3 per 1000 (1 to 9)			

Moderate	
14 per 1000	9 per 1000 (3 to 24)

*The basis for the assumed risk (e.g. the median control group risk across studies) is provided in footnotes. The corresponding risk (and its 95% confidence interval) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI).

CI: Confidence interval; RR: Risk ratio;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] Downgraded by 1 for serious risk of bias. The included trial had high risk of bias for unit of analysis error, allocation concealment and blinding.
[2] Downgraded by 2 for Indirectness as there is only one included study from Asia. Extrapolation to other areas and populations not possible.
[3] Downgraded by 1 for imprecision. There is only included study, with few study participants and estimates have wide confidence intervals around the estimate of the effect
[4] Downgraded by 1 for serious risk of bias. Both trials had high risk of bias for allocation concealment and blinding and one had high risk of bias for unit of analysis error
[5] Downgraded by 1 for indirectness as both included trials are from South Asia. Extrapolation to other areas and population not possible.
[6] Downgraded by 1 for serious risk of bias. The one included trial had high risk of bias for blinding and allocation concealment
[7] Downgraded by 1 for serious risk of bias. The included trial had high risk of bias for recruitment, allocation concealment and blinding.
[8] No explanation was provided
[9] Downgraded by 1 for serious risk of bias. All trials were at high risk of bias for blinding. Two trial were considered at high risk of bias for attrition.
[10] Downgraded by 1 for imprecision. There are only two studies, with estimates that have wide confidence intervals around the estimate of the effect
[11] Downgraded by 1 for serious risk of bias. The two included trials had high risk of bias for allocation concealment and blinding.
[12] Downgraded by 1 for serious risk of bias. One trial had high risk of bias for allocation concealment and both for blinding
[13] Downgraded by 1 for serious risk of bias. All four trials had high risk of bias for allocation concealment and blinding. One trial had risk of bias for attrition.
[14] The one included trial had high risk of bias for blinding, allocation concealment and baseline balance between clusters.
[15] The only included trial is from Africa. Extrapolation to other areas and populations not possible.

B. Improvement in Water Supply and Quality Compared to No Intervention for Children

Patient or population: Children; **Settings:** Low- and Middle-income Countries
Intervention: Improvement in Water Supply and Quality; **Comparison:** No Intervention

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	No Intervention	Improvement in Water Supply and Quality				
WAZ		The mean waz in the intervention groups was **0.03 higher** (0 to 0.06 higher)		121 (1 study)	⊕⊕⊖⊖ **low**[1,2]	
Cough	Study population		RR 0.97 (0.84 to 1.12)	5518 (1 study)	⊕⊕⊖⊖ **low**[2,3]	
	122 per 1000	118 per 1000 (102 to 136)				
	Moderate					
	122 per 1000	118 per 1000 (102 to 137)				
Fever (ep/person weeks)	Study population		RR 1.02 (0.89 to 1.18)	5518 (1 study)	⊕⊖⊖⊖ **very low**	
	118 per 1000	120 per 1000 (105 to 139)				
	Moderate					
	118 per 1000	120 per 1000 (105 to 139)				
Ocular Chlamydia	Study population		RR 1.35 (0.87 to 2.09)	557 (1 study)	⊕⊖⊖⊖ **very low**[4]	
	110 per 1000	148 per 1000 (96 to 230)				
	Moderate					
	110 per 1000	149 per 1000 (96 to 230)				
Active Trachoma	Study population		RR 1.1 (0.93 to 1.29)	557 (1 study)	⊕⊖⊖⊖ **very low**	
	495 per 1000	544 per 1000 (460 to 638)				
	Moderate					
	495 per 1000	545 per 1000 (460 to 639)				
School Absenteeism (days absent/total child-school days)	Study population		RR 0.99 (0.96 to 1.02)	91946 (1 study)	⊕⊕⊖⊖ **low**[5]	
	144 per 1000	142 per 1000 (138 to 146)				
	Moderate					
	144 per 1000	143 per 1000 (138 to 147)				
Mortality	Study population		RR 0.45 (0.25 to 0.81)	4088 (5 studies)	⊕⊖⊖⊖ **very low**[6,7]	
	17 per 1000	8 per 1000 (4 to 14)				
	Moderate					
	12 per 1000	5 per 1000 (3 to 10)				
Mortality - RCT	Study population		RR 0.45 (0.25 to 0.82)	3739 (4 studies)	⊕⊖⊖⊖ **very low**[8]	
	18 per 1000	8 per 1000 (4 to 15)				

	Moderate			
	33 per 1000	**15 per 1000** (8 to 27)		
Mortality - Non RCT	**Study population**		**RR 0.5** (0.05 to 5.43)	349 (1 study)	⊕⊝⊝⊝ **very low**[9]
	11 per 1000	**6 per 1000** (1 to 62)		
	Moderate			
	12 per 1000	**6 per 1000** (1 to 65)		

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval; **RR:** Risk ratio;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] The one included trial was at high risk of bias for attrition, blinding, and loss of clusters and unclear risk of bias for allocation concealment and baseline balance between clusters
[2] There is only one included study with small sample size from Africa. Extrapolation to other areas and populations not possible
[3] The one included trial had high risk of bias for attrition
[4] The one included trial had high risk of bias for allocation concealment, blinding, and baseline imbalance bwteeen clusters
[5] The one included trial is from a state in India, Asia. Extrapolation to other areas and populations not possible
[6] Three trials were at high risk of bias while one had unclear risk of bias for allocation concealment. All included trials had high risk of bias for blinding. Three trials were at high risk of bias for attrition. Three triasl were at high risk of bias for loss of clusters. Two had unclear riak of bias for baseline imbalance between clusters.
[7] Studies inaquately powered to study mortality. Total number of events (deaths) very low, below the threshold rule of thumb value of 300.
[8] Of the 4 included trials 2 were at high risk for allocation concealment, all for blinding, 2 for attriition and 2 for loss of clusters.
[9] The one included trial had high risk of bias for allocation concealment, blinding, attrition, loss of clusters and unclear risk of bias for random sequence generation, recruitment of clusters and baseline imbalance between clusters

C. Improvement in Sanitation Compared to No intervention for Children

Patient or population: Children; **Settings:** Low- and Middle-income Countries
Intervention: Improvement in Sanitation; **Comparison:** No intervention

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	No intervention	Improvement in Sanitation				
Weight		The mean weight in the intervention groups was **0.21 lower** (0.42 lower to 0.01 higher)		4315 (1 study)	⊕⊖⊖⊖ **very low**[1,2]	
Height		The mean height in the intervention groups was **0.63 lower** (1.18 to 0.08 lower)		4360 (1 study)	⊕⊖⊖⊖ **very low**[1,2]	
WAZ		The mean WAZ in the intervention groups was **0.01 lower** (0.12 lower to 0.1 higher)		9719 (3 studies)	⊕⊕⊕⊖ **moderate**[3]	
HAZ		The mean HAZ in the intervention groups was **0.02 lower** (0.28 lower to 0.23 higher)		7462 (3 studies)	⊕⊕⊕⊖ **moderate**[3]	
WHZ		The mean WHZ in the intervention groups was **0.01 lower** (0.18 lower to 0.16 higher)		4108 (1 study)	⊕⊖⊖⊖ **very low**[1,2]	
MUAC		The mean MUAC in the intervention groups was **0.02 lower** (0.17 lower to 0.12 higher)		4388 (1 study)	⊕⊖⊖⊖ **very low**[1,2]	
MUAC z score		The mean MUAC Z score in the intervention groups was **0 higher** (0.13 lower to 0.13 higher)		4388 (1 study)	⊕⊖⊖⊖ **very low**[1,2]	
BMI Z score		The mean bmi z score in the intervention groups was **0.06 lower** (0.23 lower to 0.11 higher)		4104 (1 study)	⊕⊖⊖⊖ **very low**[1,2]	
Stunting	**Study population**		**RR 0.88** (0.78 to 0.99)	2791 (2 studies)	⊕⊕⊕⊖ **moderate**[4]	
	399 per 1000	351 per 1000 (311 to 395)				
	Moderate					
	375 per 1000	330 per 1000 (292 to 371)				
Stunting - Cluster RCT	**Study population**		**RR 0.85** (0.77 to 0.95)	2415 (1 study)	⊕⊕⊖⊖ **low**[5]	
	410 per 1000	348 per 1000 (316 to 389)				
	Moderate					
	410 per 1000	349 per 1000 (316 to 389)				
Stunting - CBA	**Study population**		**RR 1.01** (0.76 to 1.34)	376 (1 study)	⊕⊖⊖⊖ **very low**[2,4,6]	
	340 per 1000	343 per 1000 (258 to 455)				
	Moderate					
	340 per 1000	343 per 1000 (258 to 456)				
Underweight	**Study population**		**RR 0.86** (0.76 to 0.98)	2708 (2 studies)	⊕⊕⊕⊖ **moderate**[4]	
	266 per 1000	228 per 1000 (202 to 260)				

	Moderate				
	286 per 1000	**246 per 1000** (217 to 280)			
Underweight - Cluster RCT	**Study population**		**RR 0.85** (0.74 to 0.98)	2452 (1 study)	⊕⊕⊖⊖ **low**[2]
	260 per 1000	**221 per 1000** (193 to 255)			
	Moderate				
	260 per 1000	**221 per 1000** (192 to 255)			
Underweight - CBA	**Study population**		**RR 0.98** (0.68 to 1.42)	256 (1 study)	⊕⊖⊖⊖ **very low**[4,5,6]
	311 per 1000	**305 per 1000** (212 to 442)			
	Moderate				
	311 per 1000	**305 per 1000** (211 to 442)			
Wasting	**Study population**		**RR 0.12** (0.02 to 0.85)	120 (1 study)	⊕⊖⊖⊖ **very low**[2,4,6]
	212 per 1000	**25 per 1000** (4 to 181)			
	Moderate				
	213 per 1000	**26 per 1000** (4 to 181)			
RTI (number of episodes)	**Study population**		**RR 1.27** (1.12 to 1.45)	5209 (1 study)	⊕⊖⊖⊖ **very low**[1,2]
	128 per 1000	**163 per 1000** (143 to 186)			
	Moderate				
	128 per 1000	**163 per 1000** (143 to 186)			
RTI		The mean rti in the intervention groups was **0.01 higher** (0.02 lower to 0.03 higher)		6017 (1 study)	⊕⊕⊖⊖ **low**[5]
Fever		The mean fever in the intervention groups was **0 higher** (0.03 lower to 0.02 higher)		6015 (1 study)	⊕⊕⊖⊖ **low**[5]
Helminth Infection	**Study population**		**RR 0.74** (0.41 to 1.33)	5326 (3 studies)	⊕⊖⊖⊖ **very low**[4,7,8]
	155 per 1000	**115 per 1000** (64 to 206)			
	Moderate				
	164 per 1000	**121 per 1000** (67 to 218)			
Helminth Infection - Cluster RCT	**Study population**		**RR 0.98** (0.86 to 1.13)	4985 (2 studies)	⊕⊕⊕⊖ **moderate**[7]
	139 per 1000	**136 per 1000** (120 to 157)			
	Moderate				
	110 per 1000	**108 per 1000** (95 to 124)			
Helminth Infection - CBA	**Study population**		**RR 0.4** (0.28 to 0.58)	341 (1 study)	⊕⊖⊖⊖ **very low**[2,4,6]
	420 per 1000	**168 per 1000** (118 to 244)			
	Moderate				
	420 per 1000	**168 per 1000** (118 to 244)			
Chlamydia trachomatis infection	**Study population**		**RR 1.01** (0.77 to 1.33)	1211 (1 study)	⊕⊖⊖⊖ **very low**[5,6,9]
	146 per 1000	**147 per 1000** (112 to 194)			

	Moderate				
	146 per 1000	**147 per 1000** (112 to 194)			
Clinically Active Trachoma	**Study population**		**RR 0.94** (0.83 to 1.06)	1390 (2 studies)	⊕⊕⊖⊖ **low**[9,10,11]
	428 per 1000	**402 per 1000** (355 to 453)			
	Moderate				
	287 per 1000	**270 per 1000** (238 to 304)			
School Absence (Mean)		The mean school absence (mean) in the intervention groups was **0 higher** (0.01 lower to 0.01 higher)		12262 (1 study)	⊕⊖⊖⊖ **very low**[5,12]
Mortality (<10 years)	**Study population**		**RR 1.03** (0.77 to 1.39)	20086 (3 studies)	⊕⊕⊕⊖ **moderate**[9]
	19 per 1000	**19 per 1000** (14 to 26)			
	Moderate				
	7 per 1000	**7 per 1000** (5 to 10)			

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval; **RR:** Risk ratio;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] The one included trial was at high risk of bias for allocation concealment and blinding
[2] There is only one included trial from Asia. Extrapolation to other areas and populations not possible
[3] One trial was at high risk of bias for attrition and one for allocation concealment and blinding
[4] The one included trial was at high risk for random sequence generation, allocation concealment, blinding, recruitment bias and unclear risk of bias for unit of analysis error
[5] There is only one included trial from Africa. Extrapolation to other populations and areas not possible.
[6] Total number of events is less than 300 (a threshold rule-of-thumb value)
[7] One trial was at high risk of bias for allocation concealment and blinding and one for attrition.
[8] There are widely differing estimates of the treatment effect (i.e. heterogeneity or variability in results) across studies without a plausible explanation except study design
[9] The included trial was at high risk of bias for allocation concealment, baseline imbalance of clusters and unit of analysis error.
[10] One trial was at high risk of bias for allocation concealment, blinding and attrition
[11] Both trials from Africa. Extrapolation to other areas and populations not possible.
[12] One trial was at high risk of bias for allocation concealment, blinding and baseline imbalance of clusters

D.   Improvement in Sanitation and Hygiene Compared to No Intervention for Children

Patient or population: Children; **Settings:** Low- and Middle-income Countries
Intervention: Improvement in Sanitation and Hygiene; **Comparison:** No Intervention

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	No Intervention	Improvement in Sanitation and Hygiene				
STH	**Study population**		**RR 1.14** (0.87 to 1.5)	727 (1 study)	⊕⊖⊖⊖ **very low**[1,2,3]	
	208 per 1000	**237 per 1000** (181 to 312)				
	Moderate					
	208 per 1000	**237 per 1000** (181 to 312)				
School Absence (Mean)		The mean school absence (mean) in the intervention groups was **0.01 lower** (0.05 lower to 0.02 higher)		14337 (2 studies)	⊕⊕⊕⊖ **moderate**[4]	

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval; **RR:** Risk ratio; **STH**: soil transmitted helminths

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] The one included trial was at high risk of bias for blinding, attrition and unit of analysis error
[2] The one included trial is from Africa. Extrapolation to other areas and populations not possible.
[3] Total number of events less than rule of thumb figure of 300
[4] Both trials at high risk of bias for allocation concealment and blinding and one for baseline imbalance of clusters

E.   Improvement in Water Supply and Quality and Hygiene Compared to No Intervention for Children

Patient or population: Children; **Settings:** Low- and Middle-income Countries
Intervention: Improvement in Water Supply and Quality and Hygiene; **Comparison:** No Intervention

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	No Intervention	Improvement in Water Supply and Quality and Hygiene				
WAZ (Follow-up)		The mean WAZ (follow up) in the intervention groups was **0.14 lower** (0.5 lower to 0.22 higher)		320 (1 study)	⊕⊖⊖⊖ **very low**[1,2]	
HAZ (Follow-up)		The mean HAZ (follow up) in the intervention groups was **0.13 lower** (0.55 lower to 0.29 higher)		320 (1 study)	⊕⊖⊖⊖ **very low**[1,2]	
BMI Z-score (Follow up)		The mean BMI z score (follow up) in the intervention groups was **0.05 lower** (0.39 lower to 0.29 higher)		320 (1 study)	⊕⊖⊖⊖ **very low**[1,2]	

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] Only one included trial from urban slums in Pakistan. Extrapolation to other populations not possible.
[2] Total population size is less than 400 (a threshold rule-of-thumb value; using the usual Î± and Î², and an effect size of 0.2 SD.

F. Improvement in Water Supply and Quality and Sanitation Compared to No Intervention for Children

Patient or population: Children; **Settings:** Low- and Middle-income Countries
Intervention: Improvement in Water Supply and Quality and Sanitation; **Comparison:** No Intervention

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk **No Intervention**	Corresponding risk **Improvement in Water Supply and Quality and Sanitation**				
Low weight for age	**Study population**		**RR 0.77** (0.5 to 1.19)	197 (1 study)	⊕⊖⊖⊖ **very low**[1,2,3]	
	333 per 1000	**257 per 1000** (167 to 397)				
	Moderate					
	333 per 1000	**256 per 1000** (166 to 396)				

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval; **RR:** Risk ratio;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] The one included trial was at high risk of bias for random sequence generation, allocation concealment, blinding, attrition, recruitment bias, loss of clusters and unit of analysis error
[2] The study was conducted in an urban slum in Chile. Extrapolation to other areas and populations not possible.
[3] Total number of events less than rule of thumb value of 300,

G. Improvement in Water, Sanitation and Hygiene Compared to No Intervention for Children

Patient or population: Children; **Settings:** Low- and Middle-income Countries; **Intervention:** Improvement in Water, Sanitation and Hygiene; **Comparison:** No Intervention

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	No Intervention	Improvement in Water, Sanitation and Hygiene				
HAZ		The mean HAZ in the intervention groups was **0.22 higher** (0.12 to 0.32 higher)		1899 (1 study)	⊕⊖⊖⊖ **very low**[1,2]	
Stunting	Study population		RR 0.87 (0.81 to 0.94)	1899 (1 study)	⊕⊖⊖⊖ **very low**[1,2]	
	617 per 1000	**537 per 1000** (500 to 580)				
	Moderate					
	617 per 1000	**537 per 1000** (500 to 580)				
STH Prevalence	Study population		RR 0.88 (0.6 to 1.29)	1291 (2 studies)	⊕⊕⊖⊖ **low**[3,4]	
	246 per 1000	**217 per 1000** (148 to 318)				
	Moderate					
	427 per 1000	**376 per 1000** (256 to 551)				
STH Prevalence - Cluster RCT	Study population		RR 1.06 (0.83 to 1.36)	1113 (1 study)	⊕⊖⊖⊖ **very low**[5,6]	
	179 per 1000	**190 per 1000** (149 to 244)				
	Moderate					
	179 per 1000	**190 per 1000** (149 to 243)				
STH Prevalence - Cluster Non RCT	Study population		RR 0.73 (0.57 to 0.94)	178 (1 study)	⊕⊖⊖⊖ **very low**[3,7]	
	675 per 1000	**493 per 1000** (385 to 634)				
	Moderate					
	675 per 1000	**493 per 1000** (385 to 634)				
School Absence (Mean)		The mean school absence (mean) in the intervention groups was **0.02 lower** (0.07 lower to 0.02 higher)		2263 (1 study)	⊕⊕⊖⊖ **low**[5]	

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: Confidence interval; **RR:** Risk ratio; **STH:** soil transmitted helminths

GRADE Working Group grades of evidence: **High quality:** Further research is very unlikely to change our confidence in the estimate of effect; **Moderate quality:** Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate; **Low quality:** Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate; **Very low quality:** We are very uncertain about the estimate.

[1] The included trial was at high risk of bias for randomization, allocation concealment, blinding and recruitment bias
[2] The trial was conducted in rural Ethiopia. Extrapolation to other areas and populations not possible.
[3] The included trial was at high risk of bias for randomization, allocation concealment and blinding
[4] 95% confidence interval (or alternative estimate of precision) around the pooled or best estimate of effect includes both 1) no effect and 2) appreciable benefit or appreciable harm with a relative risk reduction (RRR) or relative risk increase (RRI) greater than 25%.
[5] The study took place in school children in Kenya. Extrapolation to other areas and populations not possible.
[6] Total number of events less than rule of thumb value of 300; [7] The study was conducted in rural Uzbekistan. Extrapolation to other areas and populations not possible.

H. All WASH Interventions Compared to No Intervention for Growth in Children

Patient or population: Children; **Settings:** Low- and Middle-income Countries
Intervention: All WASH Interventions; **Comparison:** No Intervention

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	No Intervention	**All WASH Interventions**				
Weight		The mean weight in the intervention groups was **0.02 lower** (0.42 lower to 0.38 higher)		5587 (2 studies)	⊕⊕⊖⊖ **low**[1,2]	
Weight (Follow up)		The mean weight (follow up) in the intervention groups was **0.2 lower** (0.53 lower to 0.13 higher)		1390 (1 study)	⊕⊖⊖⊖ **very low**[1,3]	
Height		The mean height in the intervention groups was **1.79 higher** (6.95 lower to 10.53 higher)		5632 (2 studies)	⊕⊕⊖⊖ **low**[1,2]	
Height (Follow up) (mm)		The mean height (follow up) (mm) in the intervention groups was **10 lower** (24.77 lower to 4.77 higher)		1390 (1 study)	⊕⊖⊖⊖ **very low**[1,3]	
WAZ/WFA		The mean WAZ/WFA in the intervention groups was **0.01 standard deviations higher** (0.06 lower to 0.09 higher)		11112 (5 studies)	⊕⊕⊕⊖ **moderate**[4]	SMD 0.01 (-0.06 to 0.09)
WAZ (Follow up)		The mean WAZ (follow up) in the intervention groups was **0.01 standard deviations lower** (0.1 lower to 0.08 higher)		2011 (2 studies)	⊕⊕⊕⊖ **moderate**[1]	SMD -0.01 (-0.1 to 0.08)
HAZ/HFA		The mean HAZ/HFA in the intervention groups was **0.01 standard deviations higher** (0.11 lower to 0.14 higher)		10633 (5 studies)	⊕⊕⊕⊖ **moderate**[5]	SMD 0.01 (-0.11 to 0.14)
HAZ (Follow up)		The mean HAZ (follow up) in the intervention groups was **0.01 standard deviations lower** (0.1 lower to 0.07 higher)		2011 (2 studies)	⊕⊕⊕⊖ **moderate**[1]	SMD -0.01 (-0.1 to 0.07)
WHZ/WFH		The mean WHZ/WFH in the intervention groups was **0 standard deviations higher** (0.06 lower to 0.05 higher)		5380 (2 studies)	⊕⊕⊖⊖ **low**[1,2]	SMD 0 (-0.06 to 0.05)
WFH (Follow up)		The mean WFH (follow up) in the intervention groups was **1 lower** (1.95 to 0.05 lower)		1390 (1 study)	⊕⊖⊖⊖ **very low**[1,3]	
MUAC		The mean MUAC in the intervention groups was **0.02 lower** (0.17 lower to 0.12 higher)		4388 (1 study)	⊕⊕⊖⊖ **low**[6]	
MUAC z score		The mean MUAC z score in the intervention groups was **0 higher** (0.13 lower to 0.13 higher)		4388 (1 study)	⊕⊕⊖⊖ **low**[6]	
BMI Z score		The mean BMI z score in the intervention groups was **0.06 lower** (0.23 lower to 0.11 higher)		4104 (1 study)	⊕⊕⊖⊖ **low**[6]	
BMI z score (Follow up)		The mean BMi z score (follow up) in the intervention groups was **0.05 lower** (0.39 lower to 0.29 higher)		320 (1 study)	⊕⊕⊖⊖ **low**[7]	
Underweight/ Low WAZ	**Study population**		OR 0.81 (0.69 to 0.96)	3073 (4 studies)	⊕⊕⊖⊖ **low**[8]	
	266 per 1000	**227 per 1000** (200 to 258)				

	Moderate				
	286 per 1000	**245 per 1000** (217 to 278)			
Stunting	**Study population**		**OR 0.77** (0.68 to 0.86)	4690 (3 studies)	⊕⊕⊖⊖ **low**[9]
	493 per 1000	**429 per 1000** (399 to 456)			
	Moderate				
	410 per 1000	**349 per 1000** (321 to 374)			
Wasting	**Study population**		**RR 0.12** (0.02 to 0.85)	120 (1 study)	⊕⊖⊖⊖ **very low**[10,11,12]
	212 per 1000	**25 per 1000** (4 to 181)			
	Moderate				
	213 per 1000	**26 per 1000** (4 to 181)			

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval; **RR:** Risk ratio; **OR:** Odds ratio;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] One trial was at high risk of bias for unit of analysis error and both for blinding and allocation concealment
[2] Both trials were conducted in rural areas in South Asia. Extrapolation to other areas and populations not possible.
[3] Only one trial included from rural Bangladesh. Extrapolation to other areas and populations not possible.
[4] One trial was at high risk of bias unit of analysis error, one for loss of clusters, two for attrition, two for allocation concealment and three for blinding.
[5] One trial was at high risk of bias for randomization and recruitment bias, one for unit of analysis error, one for attrition, three for allocation concealment and blinding.
[6] Only one trial from rural India. Extrapolation to other areas and populations not possible.
[7] Only one trial from urban slums in Pakistan. Extrapolation to other areas and populations not possible.
[8] Three of the included trials were non randomized trials. One had high risk of bias for attrition, loss of clusters and unit of analysis error. Three were at high risk of bias for allocation concealment and blinding.
[9] Two of the three included trials were at high risk for random sequence generation, recruitment bias, allocation concealment and blinding.
[10] Only one trial which was nonrandomized with high risk of bias for allocation concealment, blinding, and recruitment bias
[11] There is only one included trial from Asia. Extrapolation to other areas and populations not possible
[12] Total number of events is less than 300 (a threshold rule-of-thumb value)

WEB TABLE I CHARACTERISTICS OF INCLUDED STUDIES

Study	Design	Country	Continent	Age group	N			Intervention category	Intervention details	Outcome of interest
					Total	Intervention	Control			
Slayton 2016	Cluster RCT	Kenya	Africa	< 2 y	738			Hygiene	Antimicrobial Hand Towel	Acute respiratory infections, self-reported fever, and skin infections in children
Shafique 2016	Cluster RCT	Bangladesh	Asia	0-12 mo	467	236	231	Hygiene	Hand Sanitiser	Stunting, Infections
Pickering 2015	Cluster RCT	Mali	Africa	< 5 y	6012	3140	2872	Sanitation	Community-led total sanitation (CLTS) uses participatory methods to eliminate the practise of open defecation in rural communities and promote building of toilets.	Respiratory tract infections, Anthropometry, Mortality
Patil 2014	Cluster RCT	India	Asia	< 5 y	5209	2600	2609	Sanitation	Subsidies for and promotion of individual household latrines that can safely confine feces (similar to Joint Monitoring Programme defined improved sanitation facilities), school sanitation and hygiene education, Anganwadi (preschool) toilets, and community sanitation complexes.	Respiratory tract infections, Anthropometry, Worm infestations
Mahmud 2015	Cluster RCT	Ethiopia	Africa	6-15 y	367	185	182	Hygiene	Handwashing, Nail clipping	Worm infestations
Ercumen 2015	Cluster RCT	Bangladesh	Asia	6 mo-5 y	1814	1209	605	Water	Safe storage and/or water treatment	Mortality
Christensen	Cluster	Kenya	Africa	4-16 mo	432	198	234	Water,	Water treatment, sanitation	Respiratory Tract

2015	RCT								Sanitation and Hygiene	improvement, health education	Infections, Fever. Growth studied (data not provided)
Belizario 2015	CBA study	Philipines	Asia	2-15 y	341	150	191	Sanitation	Community-led total sanitation (CLTS) uses participatory methods to eliminate the practise of open defecation in rural communities and promote building of toilets.	Worm infestations, Anthropometry
Nicholson 2014	Cluster RCT	India	Asia	< 5 y	1680	847	833	Hygiene	Handwashing promotion and provision of free soap	Respiratory infections, School absence
Morris 2014	Cluster RCT	Kenya	Africa	4-10 mo	240			Water	Ceramic water filters (CWFs) remove or inactivate waterborne diarrheal pathogens in drinking water through size exclusion and silver exposure.	Respiratory infections, Febrile illness
Clasen 2014	Cluster RCT	India	Asia	0-5 y	3835	1919	1916	Sanitation	Latrine promotion and construction by combining social mobilisation with a post-hoc subsidy.	Helminth infection, Weight, Height, Mortality
Caruso 2014	Cluster RCT	Kenya	Africa	School children	17564	12262	5302	1. Sanitation and Handwashing *vs* Control; Handwashing *vs* Control; Sanitation and Handwashing *vs* Handwashing	Sanitation: Schools received reusable hardware (buckets, brooms, hand brushes, plastic scoop), consumables (bleach, powdered soap), toilet tissue, handwashing materials, sheets for pupils to monitor latrines conditions daily and training for two	School absence

									teachers – the head teacher and health patron. Handwashing: Received powdered soap and instructions on how to make soapy water	
Pickering 2013	Cluster RCT	Nairobi	Africa	School children	1364	895	469	Hygiene	Provision of soap and water or hand sanitizers for hand hygiene	Vomiting, cough, difficulty breathing, skin rash, rhinorrhea, school absence
Hammer 2013	Cluster RCT	India	Asia	Under 5 years				Sanitation	Latrine promotion and construction by combining social mobilisation with a subsidy.	Height
Gyorkos 2013	Cluster RCT	Peru	South America	10 y	1089	518	571	Hygiene	Hygiene Education	Soil transmitted helminthiasis prevalence
Freeman 2013a	Cluster RCT	Kenya	Africa	School children	915	470	445	Water, Sanitation and Hygiene; Water and Hygiene	Hygiene promotion, water treatment technology, and sanitation infrastructure, which included commercially manufactured hand washing and drinking water storage containers and a 1-year supply of point-of-use water treatment product distributed by Population Services International with the brand name WaterGuard.	Soil transmitted helminthiasis prevalence
Dumba 2013	Cluster RCT	Uganda	Africa	Under 5 years	727	357	370	Sanitation and Hygiene	PHAST means Participatory Hygiene and Sanitation Transformation; a participatory approach	Soil transmitted helminthiasis prevalence

									that uses visual tools to stimulate the participation of people in promotion of improved hygiene and sanitation.	
Boisson 2013	Cluster RCT	India	Asia	All children	2986	1504	1482	Water	Intensive promotion campaign and free distribution of sodium dichloroisocyanurate (NaDCC) tablets	Weight-for-age Z score; school absenteeism
Peletz 2012	Cluster RCT	Zambia	Africa	<2 y	121	61	60	Water	LifeStraw Family filter and two 5-L safe storage containers.	Weight-for-age Z score, Mortality
Huda 2012	CBA study	Bangladesh	Asia	< 5 y	1000	500	500	Water, Sanitation and Hygiene	Improvements in latrine coverage and usage; access to and use of arsenic-free water; and improved hygiene practices, especially handwashing with soap.	Acute respiratory infections
Correa 2012	Cluster RCT	Colombia	South America	1-5 y	1682	749	933	Hygiene	Alcohol based hand sanitiser	Acute respiratory infections
Bowen 2012	Cluster RCT	Pakistan	Asia	< 8 y	461	301	160	1. Hygiene; 2. Water and Hygiene	10 clusters received sodium hypochlorite solution for drinking water treatment; 9 received a flocculent-disinfectant product for drinking water treatment; 10 received soap, handwashing promotion, and flocculent disinfectant for drinking water treatment; 9 received soap and handwashing promotion; and 9 served as the control group.	Weight for age Z score, Height for age Z score, Body Mass Index Z score on long term follow- up

Fenn 2012	CBA study	Ethiopia	Africa	6 mo-3 y	1899	863	1036	Water, sanitation and hygiene	Hygiene education, pit latrines, treated water	Height for age Z score, Stunting
Talaat 2011	Cluster RCT	Egypt	Africa	Median 8 y	44451	20882	23569	Hygiene	Provision of soap and water and education	Acute respiratory infection, Influenza, Conjunctivitis, School absenteeism
Stoller 2011	Cluster RCT	Ethiopia	Africa	0-9 y	1211	608	603	Sanitation	Latrine construction	Ocular chlamydia infection; Trachoma
du Preez 2011	Cluster RCT	Kenya	Africa	6 mo - 5 y	1089	555	534	Water	Solar disinfection of water	Mortality, weight for age, height for age, weight for height
Langford 2011	Cluster non-RCT	Nepal	Asia	3-12 mo	88	45	43	Hygiene	Handwashing promotion	Weight for age Z score, Height for age Z score, Weight for height Z score, cough, cold, fever
Bosisson 2010	Cluster RCT	Congo	Africa	0-15 y	190	85	105	Water	Lifestraw Family filter for water treatment	Fever, Cough
Abdou 2010	Cluster RCT	Niger	Africa	< 5 y	557	284	273	Water	Wells and Handpump	Ocular chlamydia infection; Trachoma
Gungoren 2007	Cluster non-RCT	Uzbeki-stan	Asia	2-14 y	178	95	83	Water, Sanitaion and Hygiene	Hand washing with soap, safe disposal of feces and boiling of drinking water.	Soil transmitted helminthiasis prevalence
Bowen 2007	Cluster RCT	China	Asia	School children	3810	2545	1265	Hygiene	Handwashing promotion, soap provision	School absence, Fever, Headache, Otalgia, Rhinnorhea, Conjunctivitis, Sore throat, Cough, Vomiting
Rosen 2006	Cluster RCT	Israel	Asia	Pre - school children	1029	489	540	Hygiene	Handwashign promotion, eliminating shared cups and towels	School absence
Luby 2005	Cluster RCT	Pakistan	Asia	< 15 y	4691	3163	1528	Hygiene	Handwashing promotion, soap provision	Acute respiratory infection, Pneumonia, Impetigo, Mortality

Crump 2005	Cluster RCT	Kenya	Africa	< 5 y	715	467	248	Water	Flocullent disinfectant and sodium hypochlorite	Mortality
Emerson 2004	Cluster RCT	Gambia	Africa	<9 y	179	83	96	Sanitation	Latrine construction	Trachoma
Quick 1999	Cluster RCT	Bolivia	South America	< 14 y	403	199	204	Water	Point of use water chlorination and safe storage	Soil transmitted helminthiasis prevalence
Conroy 1999	Cluster non-RCT	Kenya	Africa	< 6 y	349	175	174	Water	Solar disinfection of water	Mortality
West 1995	Cluster RCT	Tanzania	Africa	1-7 y	1417	680	737	Hygiene	Facewashing	Trachoma
Ahmed 1994	Cluster non-RCT	Pakistan	Asia	0-18 mo	168	78	90	Hygiene	Hygiene education focusing on ground sanitation, personal hygiene and food hygiene	Weight for age Z score
Stanton 1988	Cluster RCT	Bangladesh	Asia	< 6 y	1390	636	754	Hygiene	Education regarding handwashing, defecation away from house and suitable disposal of waste and faeces	Weight, Height, Weight for age Z score, Height for age Z score, Weight for Height Z score
Schlesinger 1983	CBA study	Chile	South America	0-4 y	197	113	84	Water and Sanitation	Construction of a sanitary unit consisting of a kitchen, sink and lavatory with water supply	Low weight for age

CBA: Controlled before-after; RCT: Randomized controlled trial