Table S1

a. Distribution of participants who did/did not fill out memory aid and had/did not have stool collected for enteric infection detection

	Stool collected	Stool not collected	Total
Filled out memory aid	2384	0	2384
Did not fill out memory aid	150	0	150
Total	2534	0	2534

b. Distribution of participants with and without MSD enteric pathogen[1] detected/diarrhea

	Diarrhea reported	No diarrhea reported	Total
MSD enteric pathogen detected	198	262	460
No enteric pathogen detected	721	1203	1,924
Total	919	1465	2384

[1]Any pathogens detected in a child's stool specimen at enrollment that were significantly associated with moderate-to-severe diarrhea (MSD) at the GEMS Kenya site [5].

Table S2: Prevalence of enteric pathogens in stool collected from controls with/without any diarrhea in 14-day memory aid form, Global Enteric Multicenter Study, Kenya site[1]

Pathogen detection	Controls with any diarrhea n=919	Controls without any diarrhea n=1465	OR (95% CI)	p-value
No pathogen detected (MSD[2])	721 (78.5%)	1203 (82.1%)		
No pathogen detected (any[3])	284 (30.9%)	471 (32.2%)		
Only 1 pathogen detected (MSD[2])	182 (19.8%)	245 (16.7%)		
Only 1 pathogen detected (any[3])	380 (41.3%)	605 (41.3%)		
2+ pathogens detected (MSD[2])	16 (1.7%)	17 (1.2%)		
2+ pathogens detected (any[3])	255 (27.8%)	389 (26.5%)		
Bacteria				
*ST-ETEC	42 (4.6%)	58 (4.0%)	1.12 (0.74, 1.69)	0.576
LT-ETEC	57 (6.2%)	80 (5.5%)		
Females			0.71 (0.40, 1.25)	0.237
Males			1.48 (0.93, 2.34)	0.099
EAEC	161 (17.5%)	229 (15.6%)	1.08 (0.86, 1.35)	0.521
*tEPEC	56 (6.1%)	59 (4.0%)	1.45 (0.99, 2.12)	0.054
aEPEC	56 (6.1%)	94 (6.4%)	0.96 (0.68, 1.35)	0.810
EHEC	0	0	-	-
**Shigella* spp.	20 (2.2%)	32 (2.2%)		
Females			0.41 (0.14, 1.23)	0.113
Males			1.73 (0.83, 3.59)	0.140
Aeromonas	1 (0.1%)	3 (0.2%)	0.52 (0.03, 4.14)	0.576
V. cholerae O1	0	0	-	-
S. Typhi	0	0	-	-
*Non-typhoidal *Salmonella*	37 (4.0%)	43 (2.9%)	1.31 (0.83, 2.06)	0.236
C. jejuni	82 (8.9%)	105 (7.2%)	1.24 (0.91, 1.67)	0.171
C. coli	45 (4.9%)	91 (6.2%)	0.74 (0.51, 1.07)	0.111
Viruses				
*Rotavirus	23 (2.5%)	26 (1.8%)	1.33 (0.75, 2.36)	0.322
GI Norovirus	36 (3.9%)	59 (4.0%)	1.00 (0.65, 1.52)	0.999
GII Norovirus	36 (3.9%)	60 (4.1%)	0.89 (0.58, 1.35)	0.591
Adenovirus 40/41	12 (1.3%)	8 (0.5%)	2.12 (0.87, 5.44)	0.102
Adenovirus non-40/41	21 (2.3%)	36 (2.5%)	0.88 (0.50, 1.51)	0.649
Astrovirus	11 (1.2%)	26 (1.8%)	0.72 (0.34, 1.44)	0.372
Sapovirus	26 (2.8%)	45 (3.1%)	0.90 (0.54, 1.47)	0.688
Protozoa				
Giardia	200 (21.8%)	364 (24.8%)	0.90 (0.73, 1.10)	0.311
**Cryptosporidium*	36 (3.9%)	62 (4.2%)	0.86 (0.56, 1.30)	0.477
E. histolytica	2 (0.2%)	5 (0.3%)	0.59 (0.08, 2.76)	0.530

[1]All odds ratios (ORs) and 95% confidence intervals (95% CI) adjusted for age group and sex, with age- or sex-specific stratified estimates presented where effect modification was significant at 0.05. [2]Any pathogens detected in a child's stool specimen at enrollment that were significantly associated with moderate-to-severe diarrhea (MSD) at

the GEMS Kenya site [5], also denoted by an asterisk (*) in table. [3]Any pathogens detected from the entire list of potential pathogens assessed in GEMS [22].

Table S3: Prevalence of enteric pathogens in stool collected from controls with/without any diarrhea within 7 days of enrollment in 14-day memory aid form, Global Enteric Multicenter Study, Kenya site[1]

Pathogen detection	Controls with any diarrhea within 7d of enrollment n=643	Controls without any diarrhea within 7d of enrollment n=1741	OR (95% CI)	p-value
No MSD pathogen[2] detected	501 (77.9%)	1,408 (81.7%)		
Only 1 MSD pathogen[2] detected	131 (20.4%)	294 (17.1%)		
2+ MSD pathogens[2] detected	11 (1.7%)	22 (1.3%)		
Bacteria				
*ST-ETEC	34 (5.3%)	66 (3.8%)	1.40 (0.90, 2.12)	0.123
LT-ETEC	41 (6.4%)	96 (5.5%)		
Females			0.60 (0.30, 1.17)	0.131
Males			**1.67 (1.04, 2.69)**	**0.034**
EAEC	114 (17.7%)	276 (15.9%)	1.07 (0.84, 1.36)	0.582
*tEPEC	36 (5.6%)	79 (4.5%)	1.19 (0.78, 1.77)	0.406
aEPEC	38 (5.9%)	112 (6.4%)	0.93 (0.63, 1.35)	0.703
EHEC	0 (0%)	0 (0%)	-	-
**Shigella* spp.	14 (2.2%)	38 (2.2%)	1.05 (0.54, 1.90)	0.886
Aeromonas	1 (0.2%)	3 (0.2%)	0.92 (<0.01, 7.24)	0.943
V. cholerae O1	0 (0%)	0 (0%)	-	-
S. Typhi	0 (0%)	0 (0%)	-	-
*Non-typhoidal *Salmonella*	28 (4.4%)	52 (3.0%)		
0-11 mo			0.91 (0.46, 1.81)	0.797
12-23 mo			1.49 (0.62, 3.56)	0.373
24-59 mo			**3.87 (1.38, 10.8)**	**0.010**
C. jejuni	56 (8.7%)	131 (7.5%)	1.14 (0.81, 1.57)	0.449
C. coli	31 (4.8%)	105 (6.0%)	0.78 (0.51, 1.16)	0.237
Viruses				
*Rotavirus	18 (2.8%)	31 (1.8%)	1.55 (0.84, 2.77)	0.146
GI Norovirus	27 (4.2%)	68 (3.9%)	1.09 (0.68, 1.71)	0.702
GII Norovirus	26 (4.0%)	70 (4.0%)	0.96 (0.59, 1.50)	0.849
Adenovirus 40/41	9 (1.4%)	11 (0.6%)	2.06 (0.82, 5.01)	0.111
Adenovirus non-40/41	14 (2.2%)	43 (2.5%)	0.88 (0.46, 1.58)	0.678
Astrovirus	11 (1.7%)	26 (1.5%)	1.24 (0.58, 2.47)	0.557
Sapovirus	16 (2.5%)	55 (3.2%)	0.79 (0.44, 1.37)	0.424
Protozoa				
Giardia	135 (21.0%)	429 (24.6%)		
0-11 mo			1.17 (0.74, 1.84)	0.497
12-23 mo			**0.63 (0.43, 0.92)**	**0.016**
24-59 mo			0.99 (0.69, 1.42)	0.947
**Cryptosporidium*	23 (3.6%)	75 (4.3%)	0.78 (0.48, 1.24)	0.316
E. histolytica	1 (0.2%)	6 (0.3%)	0.42 (0.02, 2.48)	0.423

[1]All odds ratios (ORs) and 95% confidence intervals (95% CI) adjusted for age group and sex, with age- or sex-specific stratified estimates presented where effect modification was significant at 0.05. [2]Any pathogens detected in a child's stool specimen at enrollment that were significantly associated with moderate-to-severe diarrhea (MSD) at the GEMS Kenya site [5], also denoted by an asterisk (*) in table.

Table S4: Analysis of controls with/without potential enteric pathogens detected in stool at enrollment, Global Enteric Multicenter Study, Kenya site

Parameter	1+ potential enteric pathogens detected[1] N = 1,629	0 potential enteric pathogens detected[1] N = 755	aOR[2]	p-value[2]
a) Health conditions at enrollment				
Blood in stool collected	3 (0.2%)	1 (0.1%)	1.43 (-)	0.758
Blood in stool (in last 7 days)	6 (0.3%)	1 (0.1%)	2.29 (0.37, 44.0)	0.451
Fever (in last 7days)	648 (37.3%)	295 (37.1%)	1.00 (0.83, 1.19)	0.983
Vomiting (in last 7days)	49 (2.8%)	22 (2.8%)	1.00 (0.60, 1.70)	0.985
b) Water, sanitation, and hygiene conditions at enrollment				
Any sanitation facility present	1329 (76.4%)	589 (74.1%)	1.17 (0.96, 1.43)	0.115
Unimproved water source[3]	635 (36.5%)	278 (35.0%)	1.09 (0.91, 1.31)	0.335
Water treated	972 (55.9%)	452 (56.9%)	0.98 (0.83, 1.17)	0.849
Water treated effectively[4]	916 (52.7%)	429 (54.0%)	0.96 (0.81, 1.15)	0.685
Water treated with chlorine	782 (45.0%)	362 (45.5%)	0.99 (0.84, 1.18)	0.952
c) Health at 60d follow-up				
Diarrhea	698 (41.2%)	333 (43.0%)	0.89 (0.74, 1.06)	0.189
Visited health facility for diarrhea in last 60 day	256 (14.7%)	122 (15.3%)	0.92 (0.72, 1.18)	0.504
Dysentery in last 60d	18 (1.1%)	7 (0.9%)	1.15 (0.49, 3.00)	0.751
Visited health facility for dysentery in last 60 day	9 (0.5%)	4 (0.5%)	0.93 (0.29, 3.50)	0.904
Fever in last 60 day	974 (57.5%)	445 (57.4%)		
0-11 mo			1.26 (0.94, 1.70)	0.123
12-23 mo			0.95 (0.69, 1.29)	0.730
24-59 mo			0.80 (0.59, 1.09)	0.157
Visited health facility for fever in last 60day	319 (18.3%)	149 (18.7%)	0.99 (0.79, 1.24)	0.935
Death of child	12 (0.7%)	3 (0.4%)	2.37 (0.63, 15.4)	0.262

Bold indicates significant at 0.05. Multivariable logistic regression used for all parameters. [1]Based on stool specimen collected at enrollment, defined as any pathogens detected from the entire list of potential pathogens assessed in GEMS [22] [2]Adjusted for age group and sex, stratified estimates by age group or sex presented where effect modification significant at 0.05 was observed; [3]Water source that does not meet the criteria for "improved," per the Joint Monitoring Program criteria [40] of a source that is safely protected from outside contamination (especially feces) via its construction or intervention [4]Effective water treatment classified as solar disinfection, chlorine disinfection, boiling, or filtration through ceramic or other filter. Ineffective water treatment classified as filtration through a cloth, alum, or other chemical added;

Table S5: Health and WASH conditions among controls by enteric pathogen detection in stool and diarrhea, Global Enteric Multicenter Study, Kenya site

Parameter	Group 1 (G1) Diarrhea, ≥1 MSD pathogen[1] detected n=198	Group 2 (G2) No diarrhea, ≥1 MSD enteric pathogen[1] detected n=262	Group 3 (G3) Diarrhea, 0 MSD pathogens[1] detected n = 721	Group 4 (G4) No diarrhea, 0 MSD pathogens[1] detected n=1203
Health conditions at enrollment				
Median number of pathogens detected (range)	1 (1-2)	1 (1-3)	0	0
Blood in stool collected	0 (0%)	0 (0%)	0 (0%)	4 (0.3%)
Blood in stool (in last 7 days)	0	1 (0.4%)	2 (0.3%)	3 (0.2%)
Fever (in last 7 days)	85 (42.9%)	94 (35.9%)	316 (43.8%)	386 (32.1%)
Vomiting (in last 7 days)	5 (2.5%)	11 (4.2%)	28 (3.9%)	25 (2.1%)
WASH conditions at enrollment				
Any sanitation facility present	150 (75.8%)	209 (79.8%)	547 (75.9%)	897 (74.6%)
Unimproved water source[2]	79 (40.3%)	101 (39.0%)	277 (38.5%)	444 (37.2%)
Water treated	109 (55.6%)	157 (60.6%)	411 (57.1%)	662 (55.5%)
Water treated effectively[3]	109 (55.1%)	149 (56.9%)	387 (53.7%)	622 (51.7%)
Water treated with chlorine	90 (45.5%)	131 (50.0%)	343 (47.6%)	517 (43.0%)
Health conditions at 60-day follow-up				
Visited health facility for diarrhea	60 (30.3%)	17 (6.5%)	193 (26.8%)	84 (7.0%)
Dysentery	3 (1.5%)	2 (0.8%)	13 (1.8%)	6 (0.5%)
Visited health facility for dysentery	1 (0.5%)	0 (0%)	7 (1.0%)	4 (0.3%)
Fever	129 (65.8%)	125 (48.3%)	477 (66.3%)	620 (52.0%)
Visited health facility for fever	42 (21.2%)	37 (14.1%)	167 (23.2%)	197 (16.4%)
Death of child	5 (2.6%)	1 (0.4%)	3 (0.4%)	4 (0.3%)

[1]Any pathogens detected in a child's stool specimen at enrollment that were significantly associated with moderate-to-severe diarrhea (MSD) at the GEMS Kenya site [5].
[2]Water source that does not meet the criteria for "improved," per the Joint Monitoring Program criteria [40] of a source that is safely protected from outside contamination (especially feces) via its construction or intervention [3]Effective water treatment classified as solar disinfection, chlorine disinfection, boiling, or filtration through ceramic or other filter. Ineffective water treatment classified as filtration through a cloth, alum, or other chemical added