

## Supplemental Information

### Appendix Table 1: PRISMA checklist

Section/topic	#	Checklist item	Reported on page #
<b>TITLE</b>			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
<b>ABSTRACT</b>			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	3
<b>INTRODUCTION</b>			
Rationale	3	Describe the rationale for the review in the context of what is already known.	4,5
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	5
<b>METHODS</b>			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	NA
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	5, 6
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	6
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	Appendix 2
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	6, 7
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	6, 7
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	6, 7
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	7

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Section/topic	#	Checklist item	Reported on page #
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	6, 7
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., $I^2$ ) for each meta-analysis.	6, 7
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	6, 7
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	6, 7
<b>RESULTS</b>			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	7 Fig. 1
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	Appendix 3
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	Figure 2
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	Tables 1-2
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	7-12
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	7-12
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	7-12
<b>DISCUSSION</b>			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	12, 15
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	14, 15
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	12, 15
<b>FUNDING</b>			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	1

## Appendix 2: Search strategy

("case management"[Title/Abstract] OR "case management"[Title/Abstract] OR "treatment\*"[Title/Abstract] OR "manage"[Title/Abstract] OR "management"[Title/Abstract] OR "disease management"[Title/Abstract])

AND

((("communicable disease\*"[Title/Abstract] OR "communicable disease\*"[Title/Abstract] OR ("infectious"[Title/Abstract] AND "disease\*"[Title/Abstract] OR "infectious disease\*"[Title/Abstract] OR "adenoviridae infection\*"[Title/Abstract] OR "adenovirus infection"[Title/Abstract] OR "Campylobacter Infection\*"[Title/Abstract] OR "campylobacter" [Title/Abstract] OR "cholera"[Title/Abstract] OR "cholera"[Title/Abstract] OR "Vibrio cholera\*"[Title/Abstract] OR "hepatitis b"[Title/Abstract] OR "hepatitis b"[Title/Abstract] OR "Hepatitis B virus"[Title/Abstract] OR "hepatitis c"[Title/Abstract] OR "hepatitis c"[Title/Abstract] OR "hepatitis\*"[Title/Abstract] OR "Haemophilus influenzae type b"[Title/Abstract] OR "Haemophilus Infection\*"[Title/Abstract] OR "haemophilus influenzae type b"[Title/Abstract] OR "haemophilus influenzae type b"[Title/Abstract] OR "h influenzae type b"[Title/Abstract] OR "meninge\*"[Title/Abstract] OR "meningism\*"[Title/Abstract] OR "meningism" [Title/Abstract] OR "meningitis"[Title/Abstract] OR "meningitis"[Title/Abstract] OR "haemophilus influenzae type b"[Title/Abstract] OR "haemophilus influenzae type b"[Title/Abstract] OR "h influenzae type b"[Title/Abstract] OR "pneumonia\*"[Title/Abstract] OR "influenza" [Title/Abstract] OR "flu" [Title/Abstract] OR "HIV"[Title/Abstract] OR "HIV Infection\*"[Title/Abstract] OR "Vertical transmission" [Title/Abstract] OR "malaria" [Title/Abstract] OR "measles"[Title/Abstract] OR "meningococcal infections"[Title/Abstract] OR "meningitis, meningococcal"[Title/Abstract] OR "whooping cough"[Title/Abstract] OR "whooping cough"[Title/Abstract] OR "Pertussis"[Title/Abstract] OR "Rotavirus"[Title/Abstract] OR "Rotavirus Infection\*"[Title/Abstract] OR "rotaviral"[Title/Abstract] OR "enteritis"[Title/Abstract] OR "meningitis"[Title/Abstract] OR "pneumo\*"[Title/Abstract] OR "meningitis, pneumococcal"[Title/Abstract] OR "pneumonia"[Title/Abstract] OR "Pneumococcal Infections"[Title/Abstract] OR "pneumococcal pneumonia"[Title/Abstract] OR "dysentery"[Title/Abstract] OR "bacillary dysentery"[Title/Abstract] OR "syphilis"[Title/Abstract] OR "shigella"[Title/Abstract] OR "tuberculosi\*"[Title/Abstract] OR "tuberculosis"[Title/Abstract] OR "typhoid fever"[Title/Abstract] OR "typhoid fever"[Title/Abstract] OR "enteric" [Title/Abstract] OR "diarrh\*"[Title/Abstract] OR ("diarrh\*"[Title/Abstract] AND disease)"[Title/Abstract] OR "gastroenteritis"[Title/Abstract] OR "gastroenterit\*"[Title/Abstract]))

AND

((("adolescen\*"[Title/Abstract] OR "school-age child\*"[Title/Abstract] OR ("school-going"[Title/Abstract] AND ("child"[Title/Abstract] OR "children"))[Title/Abstract] OR "child"[Title/Abstract] OR "children"[Title/Abstract] OR ("school-aged"[Title/Abstract] AND ("child"[Title/Abstract] OR "child"[Title/Abstract] OR "children"))[Title/Abstract] OR "youth" [Title/Abstract] OR "student\*"[Title/Abstract] OR "student\*"[Title/Abstract] OR ("school"[Title/Abstract] AND ("child"[Title/Abstract] OR "children"))[Title/Abstract]))

### Appendix 3. Characteristics of included studies

S.No	Author Year	Study Design	Country	Setting	Intervention	Target Population	Outcomes Assessed
<b>Tuberculosis</b>							
1	Ganmaa 2020	RCT	Mongolia	School	Vitamin D supplementation for preventing TB in children with negative QFT at baseline Comparison: Placebo	6-13 years	Positive QFT at the end of trial Vitamin D levels at the end of trial Incidence of TB/ ARI/ adverse events at the end of trial
2	Ganmaa 2012	RCT	Mongolia	School	Vitamin D supplementation in children with intrathoracic TB Comparison: Placebo	12-15 years	Tuberculin Skin test conversion from negative to positive Changes in anthropometric measurements
3	Lodha 2014	RCT	India	Outpatient clinics	Micronutrient supplementation (3 arms) in children on ATT for intrathoracic TB - Zinc supplementation - Micronutrient supplementation (without zinc) * - Micronutrients with zinc Comparison: Placebo	6 months to 15 years	Changes in anthropometric indices Changes in chest X-ray Serum zinc and copper concentrations
4	Morisky 2001	RCT	USA	Outpatient clinics	Counselling/Contingency contract (3 arms) - Peer counselling - Parent-participant contingency contract intervention - Combined intervention (counselling and contingency planning) Comparison: Usual care	11-19 years	Rate of treatment completion Medication-taking behavior (assessed via questionnaire)

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S.No	Author Year	Study Design	Country	Setting	Intervention	Target Population	Outcomes Assessed
5	Talukder 2012	Cluster RCT	Bangladesh	Outpatient clinics	Increasing general awareness and training of health care workers regarding TB detection Comparison: No training	0-14 years	Changes in TB case detection rate
6	Spyridis 2007	RCT	Greece	Outpatient clinics	Shorter course of TB treatment (2 arms) - Isoniazid and Rifampicin for 4 months - Isoniazid and Rifampicin for 3 months Comparison: 9-month TB regimen	<15 years	Treatment compliance Drug adverse effects
<b>HIV</b>							
1	Crook 2016	RCT	Uganda and Zimbabwe	Community	Cessation of Co-trimoxazole in HIV positive children Comparison: continuation of Co-trimoxazole Participants in both groups were part of ARROW trial	Children >3 years	Incidence rates of TB
2	Bwakura-Dangarembizi 2014	RCT	Uganda and Zimbabwe	Community	Cessation of Co-trimoxazole in HIV positive children Comparison: continuation of Co-trimoxazole Participants in both groups were part of ARROW trial	Children >3 years	Hospitalization or death due to malaria Hospitalization or death due to infections other than malaria
<b>Acute Respiratory Infection</b>							

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1	Camargo 2012	Cluster RCT	Mongolia	School/Community	Vitamin D fortified milk to children from third and fourth grades of school (5 arms) <ul style="list-style-type: none"> <li>- 300 IU of vitamin D3 daily in Mongolian milk</li> <li>- 300 IU of vitamin D3 daily in US milk</li> <li>- 300 IU of vitamin D3 daily in a milk substitute</li> <li>- 300 IU of vitamin D3 in a daily pill (n=112)</li> <li>- a total of 13 700 IU of vitamin D3 in pills</li> </ul> Comparison: Unfortified regular Mongolian milk	Mean 9.95 years (third and fourth grade students)	Vitamin D3 levels at follow-up ARI after 3 months Effect of vitamin D3 supplementation on number of ARIs.
<b>Measles</b>							
1	Mahalanabis 2002	RCT	India	Inpatient	Zinc supplementation in children with severe measles accompanied by pneumonia Comparison: Placebo to children with severe measles accompanied by pneumonia	9 months to 15 years	Time needed for resolution of symptoms (fever, tachypnoea, return of appetite) Serum zinc and retinol levels
2	Garly 2006	RCT	Guinea-Bissau	Community	Co-trimoxazole course in patients with measles Comparison: Placebo to patients with measles	Median 5.4 (0.49-24.8)	Development of pneumonia Admission to hospital Change in weight Diarrhoea/ fever/ stomatitis/ conjunctivitis/ otitis media/ oral thrush
<b>Malaria</b>							

S.No	Author Year	Study Design	Country	Setting	Intervention	Target Population	Outcomes Assessed
1	Mubi 2011	Randomised cross-over trial	Tanzania	Community	CHWs trained to manage uncomplicated malaria using RDT aided diagnosis or clinical diagnosis	5-14 years	Referral of malaria cases Treatment with ACT
<b>Urinary Tract Infection</b>							
1	Yousefichaijan 2016	RCT	Iran	Inpatient	Zinc supplementation in addition to standard treatment for children diagnosed with UTI Comparison: Only standard treatment for children diagnoses with UTI	3-12 years	Days with symptoms (fever, dysuria, frequency, inconsistency, dribbling, urgency)
<b>Diarrhoea</b>							
1	Boisson 2009	RCT	Ethiopia	Community	Household with Lifestraw filter treated water Comparison: No filtered water	Not stated; age group specific data given	Longitudinal prevalence of diarrhea Presence of thermotolerant coliforms (TTC) Residual iodine in treated water Prevalence of other health outcomes (vomiting, skin rash, cough)
2	Boisson 2010	RCT	Democratic Republic of Congo	Community	Household with Lifestraw filter treated water Comparison: Placebo to look like a filter	Not stated; age group specific data given	Longitudinal prevalence of diarrhea Longitudinal prevalence of fever Longitudinal prevalence of cough
3	Brown 2008	RCT	Cambodia	Community	Filtered water (2 arms) - Ceramic water purifier (CWP) - Iron-rich ceramic purifier (CWP-Fe) Comparison: No intervention	Median age 19 years (range: 0-105 years); age group specific data given	Longitudinal prevalence of diarrhea Measured levels of E.coli in household drinking water

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4	Chiller 2005	Cluster RCT	Guatemala	Community	Water treatment with flocculant-disinfectant Comparison: Usual water-handling practices	Not stated; age group specific data given	Longitudinal prevalence of diarrhea Chlorine concentration of water
5	Clasen 2004	RCT	Colombia	Community	Water filters Comparison: usual water handling practices	Median age: 15 years (range 1 week to 86 years); age specific data given	Diarrheal disease risk Mean diarrhea prevalence Mean thermotolerant coliform counts
6	Freeman 2013	Cluster RCT	Kenya	School	Hand hygiene and water treatment (4 arms) <ul style="list-style-type: none"> <li>- Hygiene promotion and water treatment (HP&amp;WT) in schools where water is available</li> <li>- HP&amp;WT along with latrine provision for sanitation in schools where water is available</li> <li>- Improved water supply along with HP&amp;WT and latrine for sanitation in schools without water availability.</li> </ul> Comparison: (2 arms) <ul style="list-style-type: none"> <li>- No intervention in schools with water availability</li> <li>- No intervention in schools without water availability</li> </ul>	At least 8 years old (pupils from grade 4 to 8)	One-week period prevalence of diarrhea Days of diarrhea



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<b>S.No</b>	<b>Author Year</b>	<b>Study Design</b>	<b>Country</b>	<b>Setting</b>	<b>Intervention</b>	<b>Target Population</b>	<b>Outcomes Assessed</b>
7	Luby 2004	Cluster RCT	Pakistan	Community	Handwashing (2 arms) - Antibacterial soap - Plain soap Comparison: no intervention	Not stated; age group specific data given	Mean longitudinal prevalence of diarrhea Incidence of diarrhea Severe diarrhea outcomes (saw a practitioner for diarrhea, hospitalization, persistent diarrhea)
8	Luby 2006	Cluster RCT	Pakistan	Community	Water treatment and hand hygiene (4 arms) - Treatment with bleach - Handwashing with soap - Flocculant disinfectant - Flocculant disinfectant and handwashing with soap Comparison: no intervention	Not stated; age group specific data given	Diarrhea daily longitudinal prevalence Diarrhea weekly longitudinal prevalence Longitudinal prevalence of diarrhea Severe diarrhea outcomes (saw a practitioner, hospitalization)
9	Lule 2005	RCT	Uganda	Community	Water treatment of households of HIV positive individuals with sodium hypochlorite solution along with basic hygiene education Comparison: Education alone	Not stated; age group specific data given	Diarrhea episodes Days with diarrhea Stored water quality
10	Negi 2014	RCT	India	Inpatient	Zinc supplementation in children with acute dehydrating diarrhea along with usual care Comparison: Placebo to children with acute dehydrating diarrhea along with usual care	5-12 years	Time taken for resolution of diarrhea Number of days with diarrhea Time to rehydration Duration of hospitalization
11	Nicholson 2014	Cluster RCT	India	Community	Handwashing by provision of free soap to households along with an education, motivation and rewards program for hand hygiene. Comparison: Normal hand washing practices	Not stated; age group specific data given	Diarrhea episode per 100 weeks ARI episodes per 100 weeks Incidence of diarrhea/ ARI Number of days absent per 100 at-risk days

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12	Pickering 2013	RCT	Kenya	Community	Hand hygiene (2 arms) <ul style="list-style-type: none"> <li>- Soap use along with training session</li> <li>- Hand sanitizer along with training session</li> </ul> Comparison: No training sessions of hygiene kits	2-13 years	Reporting symptoms (diarrhea, vomiting, cough, rhinorrhea, difficulty breathing, skin rash) School attendance
13	Roy 2008	RCT	Bangladesh	Inpatient	Zinc supplementation 30 mg in children with cholera Comparison: Placebo to children with cholera	3-14 years	Duration of diarrhea Total stool weight Total vomitus weight Total ORS intake Serum zinc concentration
14	Sobsey 2003	Cluster RCT	Bolivia and Bangladesh	Community	Water treatment with household water chlorination and storage in special containers Comparison: no intervention	Not stated; age group specific data given	Mean diarrhea rates
15	Tiwari 2009	Cluster RCT	Kenya	Community	Water treatment with concrete BioSand filter Comparison: Normal/ usual practices	Children <= 15 years and Adults > 15 years	Daily child diarrhea prevalence rates Drinking water quality Child-days with diarrhea Child-weeks with diarrhea
16	Vally 2019	Cluster RCT	Philippines	Community	Water and sanitation infrastructure built, including <ul style="list-style-type: none"> <li>- Water storage systems</li> <li>- Latrines</li> <li>- Hand-washing facilities</li> <li>- Water points</li> <li>- Provision of hygiene kits</li> </ul> Students were educated on hygiene and prevention of water-related diseases. Comparison: no intervention	both boys and girls from kindergarten to grade six (ages 5–12 years).	Student self-reported incidence of diarrhea Diarrhea-related school absence in the previous 7 days

S.No	Author Year	Study Design	Country	Setting	Intervention	Target Population	Outcomes Assessed
<b>Other</b>							
1	Richard 2006	RCT	Peru	Community	Supplementation with zinc or iron (4 arms) <ul style="list-style-type: none"> <li>- Iron supplementation</li> <li>- Zinc supplementation</li> <li>- Iron and zinc supplementation</li> </ul> Comparison: Placebo	6 months to 15 years	Number of episodes of Falciparum malaria Number of episodes of Vivax malaria Number of episodes of acute lower respiratory tract infection Number of episodes of diarrhea Risk of disease Mean plasma hemoglobin Change in height- and weight-for-age
2	Talaat 2011	RCT	Egypt	Schools	Children part of intensive hand hygiene campaign Comparison: No intensive hand hygiene	Median 8 years (grade one to grade three students)	Episodes of lab-confirmed influenza A or B Incidence of school absenteeism due to influenza like illness/ diarrhea/ conjunctivitis Episodes of absence (due to ILI, diarrhea, conjunctivitis)
<p><b>Abbreviations:</b> ACT: artemisinin combined therapy; ARI: Acute Respiratory Infection; ART: Anti-Retroviral Treatment; ATT: Anti-Tubercular Treatment; CHW: Community Health Worker; HIV: Human Immunodeficiency Virus; ILI: Influenza-like illness; ORS: Oral Rehydration Salt; QFT: QuantiFERON Test; RDT: Rapid Diagnostic Testing; TB: Tuberculosis; URTI: Upper Respiratory Tract Infection; UTI: Urinary Tract Infection</p> <p>* micronutrients included (vitamin A, thiamine, riboflavin, vitamins B-6 and B-12, folic acid, niacin, vitamins C, E, and D, selenium, and copper)</p>							